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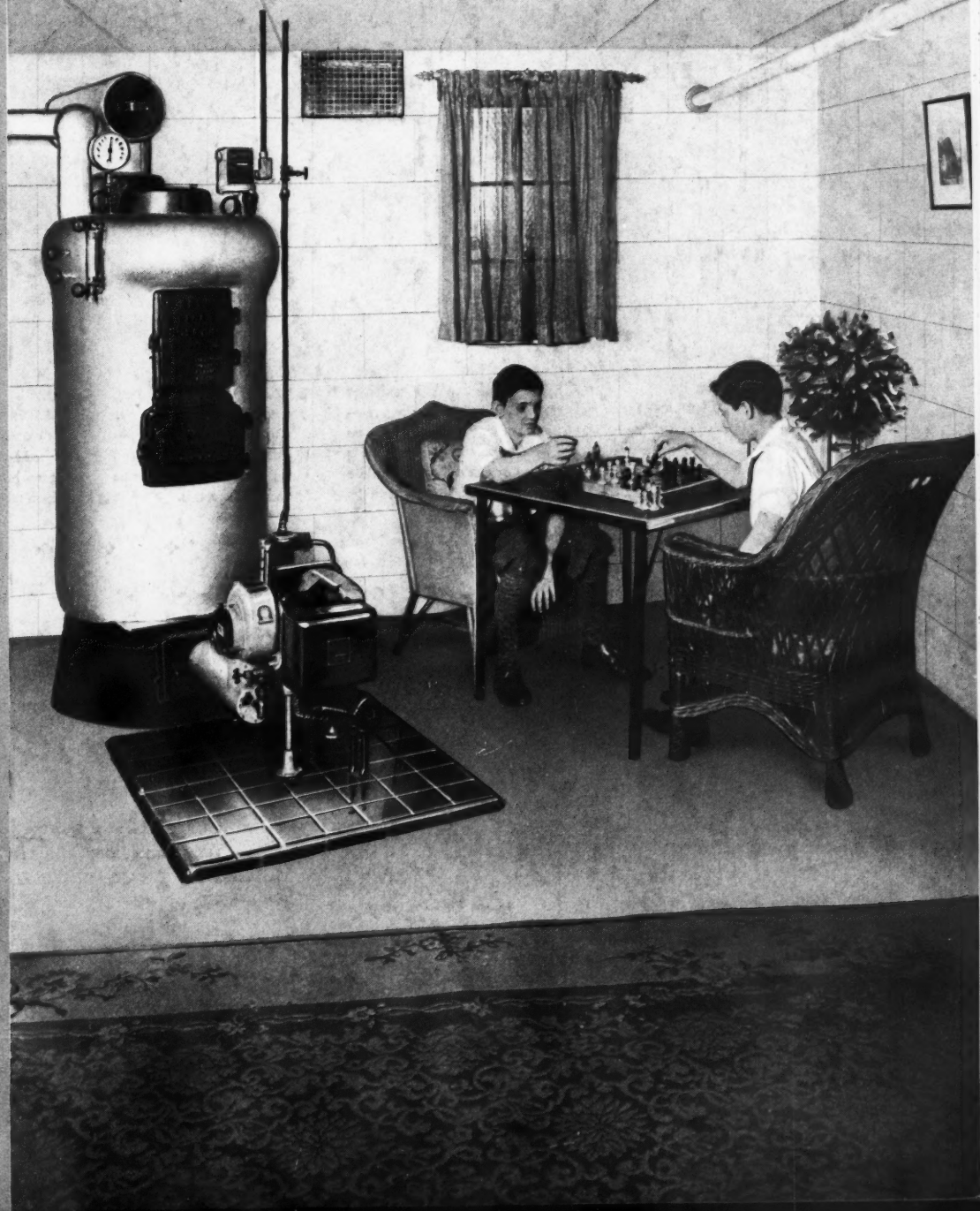
DOMESTIC ENGINEERING

PLUMBING & HEATING CONTRACTING AND MERCHANDISING



How a simple sales plan is bringing orders for today's new and attractive products—Page 35

This cover photo shows how an eastern dealer uses his store basement to display heating products in operation

AUTOMATIC HEAT
PAGE 111

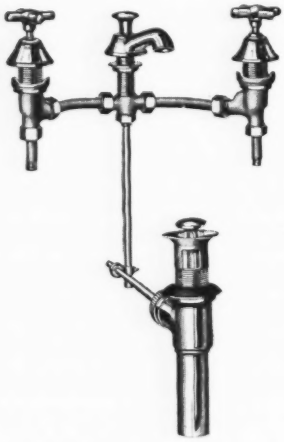
JULY, 1932

DOMESTIC ENGINEERING

Prying open the buyer's tight fist

FROM being a nation of thoughtless buyers, Americans have become one of thoughtful bargainers. This places an added obligation on the materials you sell. They must help you open sales by overcoming reluctance as well as close sales by enabling you to quote low prices.

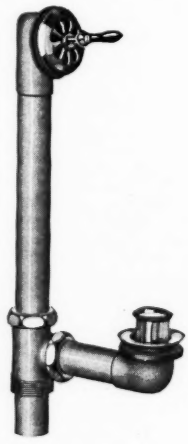
So, more than ever before, the Crane line of brass goods belongs in your sales plan. It answers the canny question about costs with 1913 price tags. It also answers demands for value with 77 years of prestige... of engineering leadership... of exact manufacturing methods... of first quality.



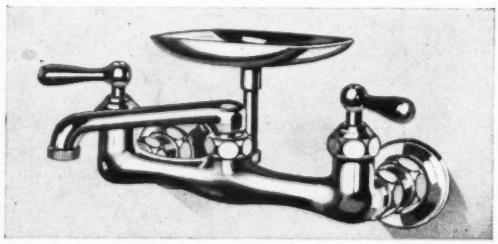
C32284-E Rival Lavatory Supply and Waste Fixture—*Easy Operation — Dependable Service* — Seats and all operating parts renewable from top of lavatory. Liberal and simple adjustment on operating rod.

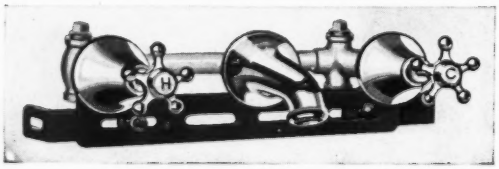
C13119 "Beta" Flushing Valve—*Economical—Dependable*—Quantity of water delivered can be regulated by screw without shutting off supply or disturbing valve. Seat and all working parts are renewable.

C32359 Lever Action Securo Waste—*Positive Action—Quick Draining*—Unfailing action—lift lever and waste operates. Outlet drains basin in six seconds.



C33581-E Accesso Bath Waste and Overflow—*Sanitary—Rigidly Constructed*—Overflow can be roughed in and permanently assembled to bath. Operating parts can be inserted after job is completed.





◇ ◇ ◇

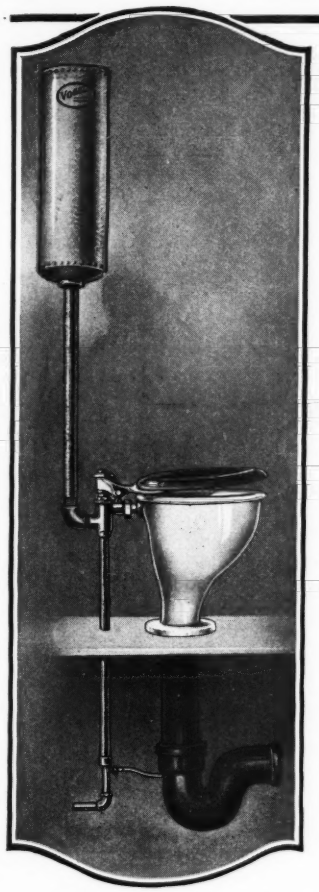
C32740AS "Agilis" Top Spout Sink Faucet—*Adjustable Supply Connections—Modern Design*—Swivel discs and renewable seats insure longer life of fixture. Eccentric supply connections adjustable from 7¾ to 8¼ inches. Spout raised above body allows unobstructed sink space.

C33512-A Overrim Spout Bath Supply Fixture—*Heavy Cast Spout—Full Areaway through Valves*—Seats and all internal working parts subject to wear are renewable, can be replaced without removing valve bodies from wall.

◇ ◇ ◇

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.
NEW YORK: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Seventy Cities

CRANE



NUMBER ONE VOGEL FROST-PROOF CLOSET

Simple in operation. Sturdy in construction. Half a million in operation.

YOU PROTECT YOUR PROFITS WHEN YOU INSTALL VOGEL FROST-PROOF CLOSETS AND HYDRANTS

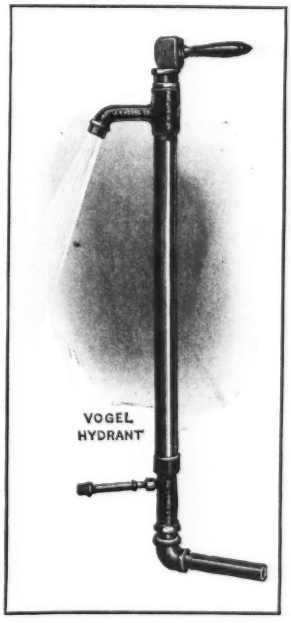
Profits on a job disappear mighty quickly when you have to make back calls every few days for repairs and adjustments

. . . So to protect themselves against this, most plumbers install Vogel Frost-Proof Closets and Hydrants. They know from experience that when a Vogel's installed it operates without repairs for years, under all conditions and withstands the hardest kind of use and abuse.

So why take a chance when you *know* you can make a good profit and build up a long list of satisfied customers installing Vogel Frost-Proof Closets and Hydrants.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware
St. Louis, Missouri

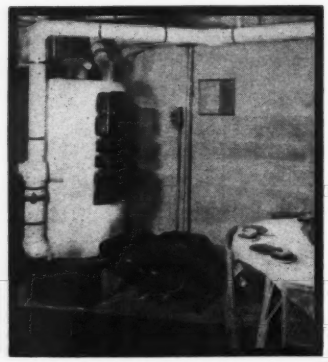
Folders and blotters on Vogel products imprinted with your name and address will be sent promptly upon request.



VOGEL FROST-PROOF HYDRANT

VOGEL PATENTED

• *Frost-Proof Products*



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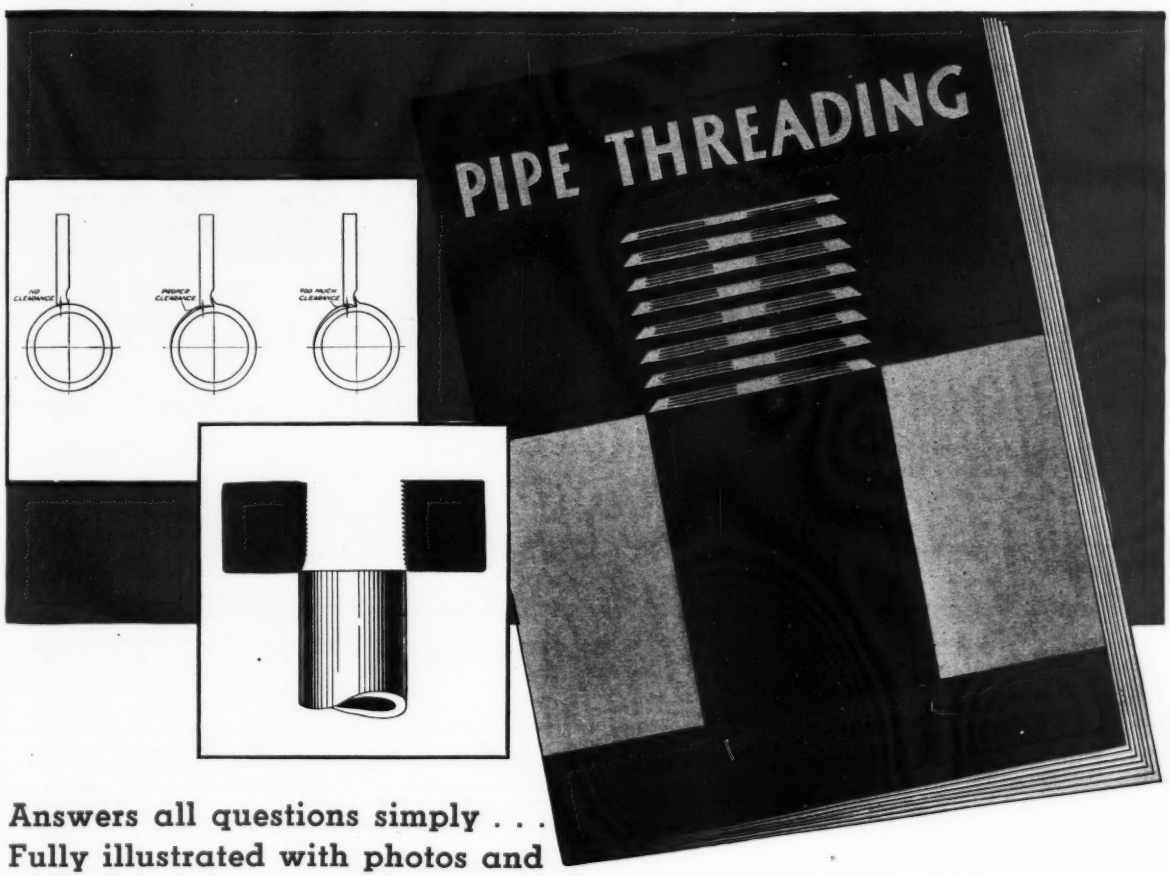
Get this working guide on THREADING



Answers all questions simply . . . Fully illustrated with photos and diagrams . . . 23 pages of information

Every contractor knows that threading is the most important operation in the installation of a piping system. Hence this Byers 23 page booklet on the "Theory and Practice of Threading Genuine Wrought Iron Pipe."

Written in simple, straightforward language, this booklet covers every phase of the best threading practice. It contains interesting, explanatory photographs and diagrams on right and wrong methods to follow. It shows how to locate trouble and how to correct it. You need this booklet.

Let it guide you in threading Byers Genuine Wrought Iron Pipe—the pipe that threads so easily because of its characteristic structure. Remember that every length of Byers Pipe is uniform with every other length. It is made of the finest genuine wrought iron in the 68 years of Byers industry leadership.

Write today for your copy of this "Pipe Threading" Bulletin 52. If you do not have the facts on Byers Special Bending Pipe—the only wrought iron pipe made especially for bending—ask also for Bulletin 50. A. M. Byers Co., Pittsburgh, Pa. Est., 1864.

You'll like Byers Jobbers—good stocks, quick deliveries, dependable service.

BYERS GENUINE WROUGHT IRON PRODUCTS

PIPE • CASING • COUPLINGS • NIPPLES • WELDING ELBOWS • SPECIAL BENDING PIPE
BAR IRON • TUBING • PLATES • SHEETS • BILLETS

BYERS 1864

Can you give this 6 Point Service to your Customers for a $10.00 Bill

1 Make a general check-up of the entire heating system for broken or missing parts.

2 Remove soot, etc., from all heating surfaces.

3 Scrape, grease and adjust all doors to prevent heat loss.

4 Cement all leaks above the grate line.

5 Paint all metal parts of boiler with black asphaltum.

6 And, finally, remove all scale, rust, grit, oil and dirt from the boiler with BLUE SEAL INSTANT BOILER CLEANER.

IF YOU CAN — BIG PROFITS ARE YOURS

BLUE SEAL
BOILER CLEANER
A Powdered Chemical for Cleaning Steam Boilers
REMOVES THE CAUSE OF SURGING FOAMING AND PRIMING, DISSOLVES OIL, GREASE, RUST, SCALE AND OTHER HEAT RESISTING SUBSTANCES IN ONE OPERATION

HERE IS A SALES PLAN THAT WILL REALLY MAKE MONEY FOR YOU! As an evidence of our desire to stimulate business on Blue Seal products, we have developed what we really believe to be an outstanding sales help for you. Read the six points above, again. You don't supply missing parts, of course,—that's extra. It is easy to clean heating systems, and clean them right, with BLUE SEAL INSTANT BOILER CLEANER, and this fact, together with the additional service you give, which doesn't take a great deal of time, assures you a nice profit from a $10.00 bill.

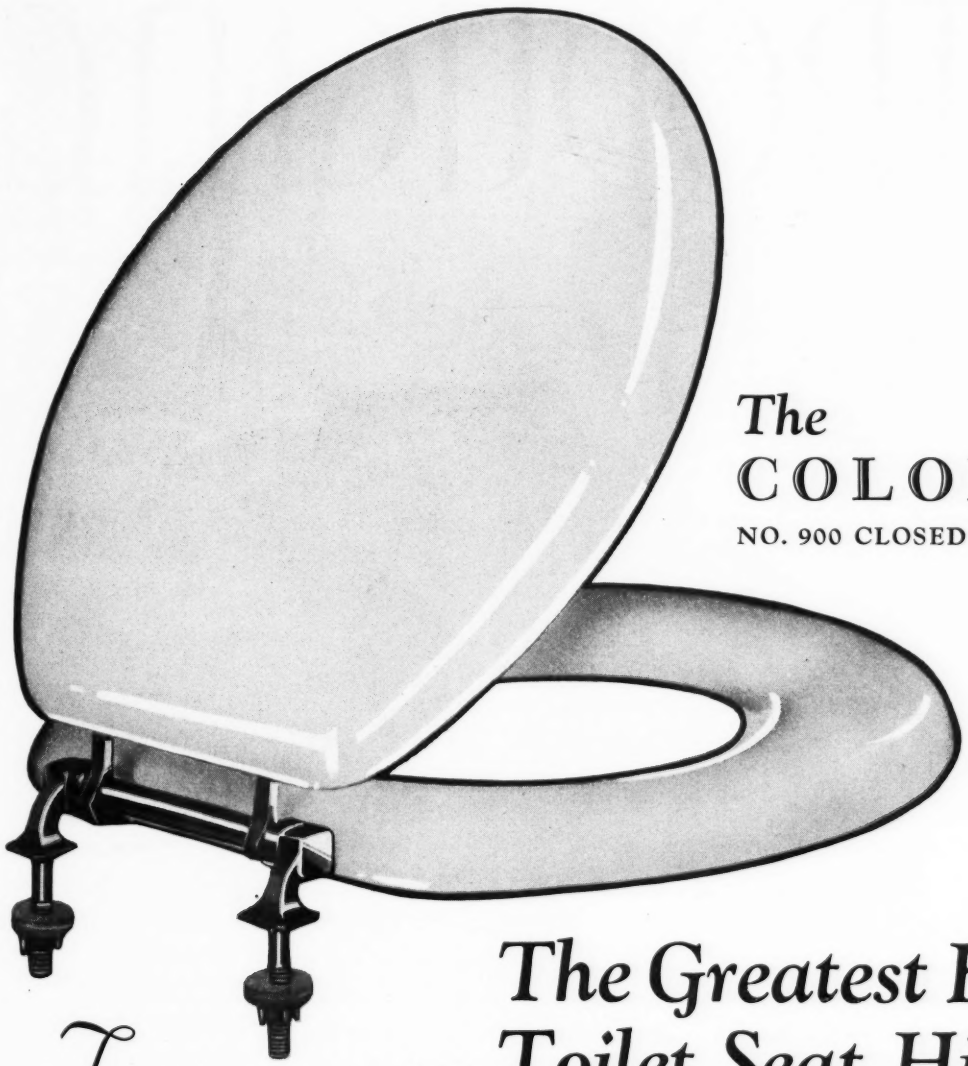
HERE'S HOW

Send us 100 names of your customers and 100 of your envelopes. We will mail these customers advertising folders imprinted with your name, which explain the six-point service you will give them for $10.00. These folders have been tried and have proved their business-getting quality. Within five days after you have been notified that the folders have been mailed, you call up your customers and ask if they have received theirs. With this quick follow-up, returns will develop that will surprise you. AND DON'T FORGET, ALL THIS WITHOUT COSTING YOU A CENT! We pay the postage, we pay everything!

We know what BLUE SEAL INSTANT BOILER CLEANER is and what it will do. We know how it will make money for you once you have used it. All we ask you to do, in order to participate in this sales plan, is to purchase one dozen (12) cans, 2 lb. size, of BLUE SEAL CLEANER, at $1.00 a can. Get busy today. Send us your order or write us for further details. Remember, this proposition is open to registered master plumbers and steam fitters only. Be the first in your locality to work out the plan.

GIVE US THE NAME OF YOUR JOBBER

BLUE SEAL CHEMICAL CO.
ROSELLE NEW JERSEY



The
COLONIAL
NO. 900 CLOSED FRONT SEAT

The Greatest Buy in Toilet Seat History!

THE Colonial No. 900 Closed Front Seat and the No. 909 Open Front Seat are the greatest buys in toilet seat history because they combine quality in an extremely high degree with an unbelievably low price.

The Colonial line was designed to meet the demands of today's market and the attractive combination of price and quality is not only developing toilet seat business for the contractor, but is acting as the opening wedge to further plumbing business.

For 35 years the Charles A. Miller Company has been serving the plumbing industry building water closet seats. All of this past experience has been built into the new Colonial Seats at a price that is proving most attractive to buyers.

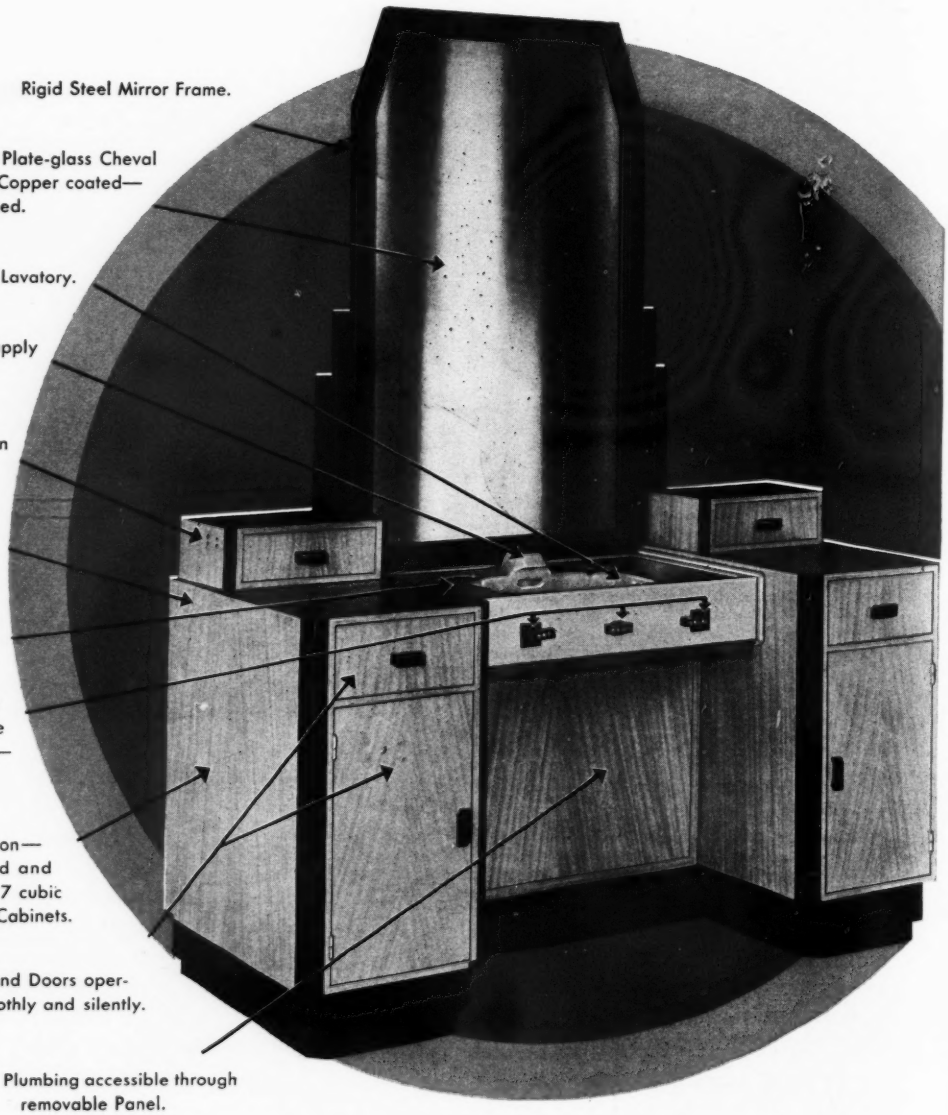
The New Colonial Designs make it possible for you to meet your customers' requirements with toilet seats that will harmonize with the most modern bathroom fixtures, in a variety of colors.

Available figures indicate that the demand this year in the replacement market alone will total hundreds of thousands of seats. Here is profitable business to be had by the dealer selling the Colonial Open or Closed Front Seats.

Write your jobber. He will be glad to explain how you can get your share of this business with the Colonial.

Charles A. Miller Company, *Sturgis, Michigan*

INTRODUCING


Rigid Steel Mirror Frame.
Heavy Plate-glass Cheval Mirror—Copper coated—Steel backed.
Vitreous China Lavatory.
Integral Water Supply Spout.
Electric Outlets—Two on each Side.
Baked Enamel Finishes on finest Furniture Steel.
Soap Dishes.
Hot and cold Water Faucet Handles and Drain Handle on Apron of Lavatory—easy of access.
All Steel Construction—braced, insulated and sound proofed. 7 cubic Feet Space in Cabinets.
Drawers and Doors operate smoothly and silently.
Plumbing accessible through removable Panel.

NEW Lady Luxury VANADOIR

(PRONOUNCED "VANA-DWAR")

A Combination Dressing Table, Lavatory and Cheval Mirror... All in One Piece... Ready for Installation ....

Here is an entirely new and distinctive piece of plumbing furniture. New in what it is. New in its sales opportunities.

The LADY LUXURY VANADOIR is a single unit which combines a dressing table, lavatory and cheval mirror into one beautiful, practical piece of Plumbing Furniture. It is complete just as you see it.

The LADY LUXURY VANADOIR is constructed throughout of furniture steel with lavatory of vitreous china and heavy plate-glass, copper coated, steel backed, steam and water-proof mirror. It is wired for electric accessories and comes complete with Plumbing Fittings, traps, etc., ready for connection to plumbing lines.

LADY LUXURY VANADOIR will have its greatest use in homes where more washing facilities are required and where additional bath facilities are not practical. Its modern design and the variety of colorings obtainable, make it a pleasing and practical piece of bedroom and dressing room furniture. No tile or special floor covering is required. It fits flush to the wall. Can be easily and quickly installed.

LADY LUXURY VANADOIR has also been endorsed by prominent architects and interior decorators, as a new trend in plumbing furniture for ladies' dressing rooms in clubs, restaurants, hotels, department stores and semi-public buildings.

First showings are already being made in important cities. Complete sets of photographs, literature, prices and discount sheets are available NOW. Send the coupon. Be the first in your town to increase your plumbing sales by installing LADY LUXURY VANADOIRS.

Lady Luxury DIVISION
EXCELSO PRODUCTS CORPORATION
1807 Elmwood Avenue, Buffalo, New York

LADY LUXURY DIVISION,
EXCELSO PRODUCTS CORP.,
1807 Elmwood Ave.,
Buffalo, N. Y.

Gentlemen:

Please send me photographs, prices and discount sheets on LADY LUXURY VANADOIR.

NAME.....

ADDRESS.....

CITY..... STATE.....

CLEAN DEEP - CUT THREADS

YOUNGSTOWN
PIPE

THE YOUNGSTOWN SHEET AND TUBE CO.

GENERAL OFFICES - YOUNGSTOWN, OHIO

Take Sherwood's Tip

SELL MORE POTTERY

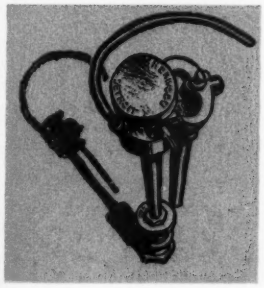
by Selling Sherwood *Ball Cocks*

Remodeling orders are not so hard to get if you've only got the means of getting into the house and calling the needed improvements to the attention of the owner.

That's what Sherwood Ball Cocks provide. Get a Sherwood, make some calls. You'll find numerous leaky, expensive and annoying ball cocks to replace. You'll find that owners will appreciate the Sherwoods ability to close against any city water pressure without whistling or gurgling and their ability to end leaks for good.

Sell Sherwoods and while selling them, sell new pottery. Let Sherwood Ball Cocks get the entree for you and you'll find the rest easy.

Order a Sherwood Ball Cock from your jobber today. Take Sherwood's tip now and increase your profits, keep busy all the time.



Alexoid RED BAND NON-CORROSIVE

Where Water Conditions are below normal and where they take a toll in wear from ball cocks, install the Sherwood Red Band (Alexoid) Ball Cock. It has been designed to meet the worst conditions in the best manner and is but slightly higher in price.

SHERWOOD BRASS WORKS

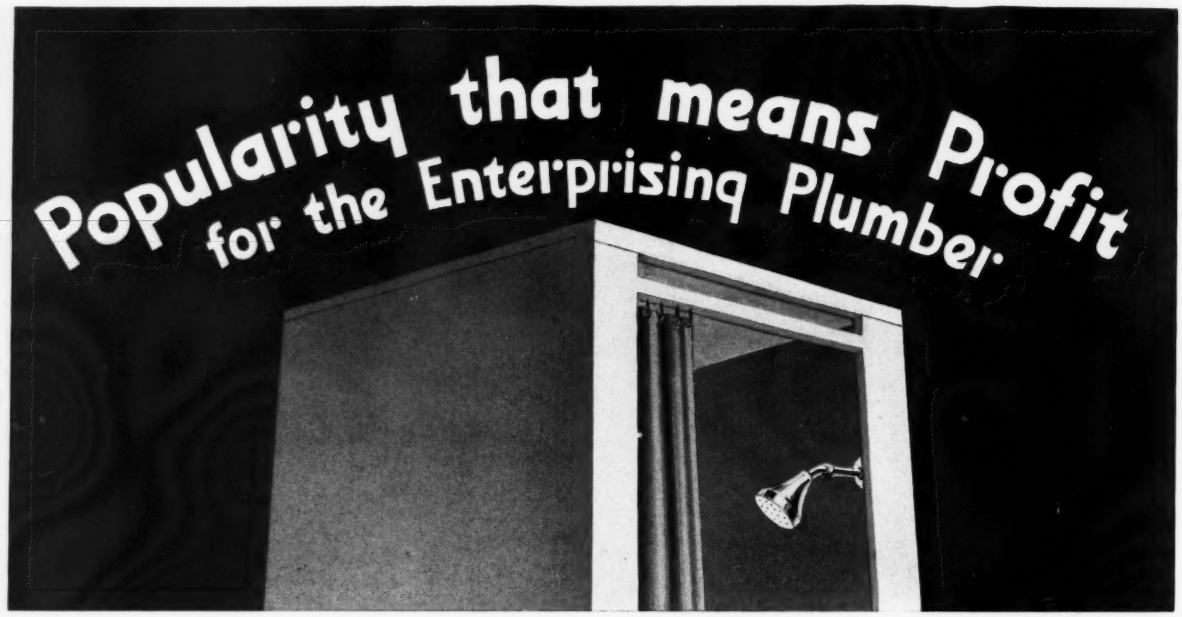
Jefferson and Mt. Elliott Aves. **DETROIT, MICH.**

Representatives

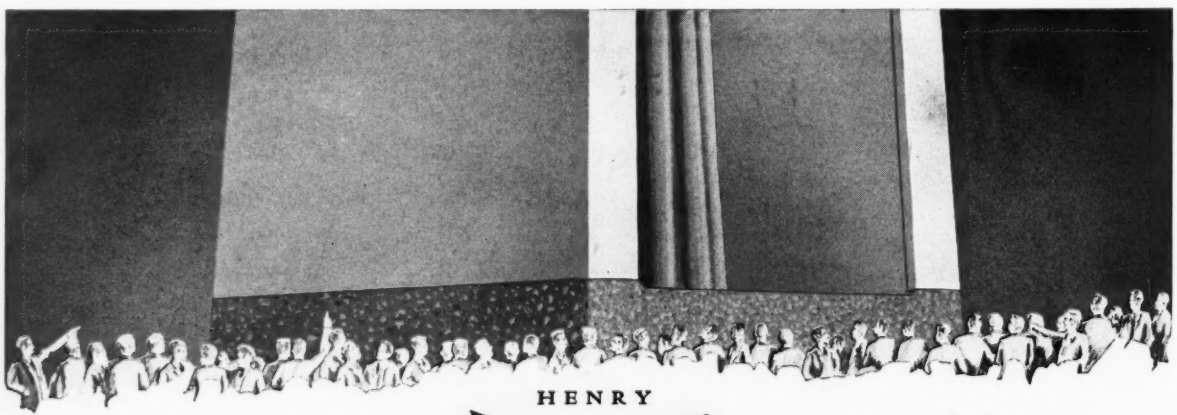
James A. Riordan Co. (Inc.) 1600 E. 7th St., Los Angeles
5319 Admiral Way, Seattle, 955 Bryant St., San Francisco
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wilsey, Plymouth Bldg., Minneapolis
Geo. W. Smith Co., 348 W. Penn Pl., Pittsburgh, Pa.

Manufactured and Sold in Canada by W. H. Cunningham & Hill Limited, Toronto, Ontario

SHERWOOD Ball Cocks



There's no getting away from the fact that the shower is the popular bath. Our schools and colleges, our country clubs, our Y. M. and Y. W. C. A.'s — all of them are teaching us to prefer quick, healthful baths in *running* water. The most satisfactory means for providing shower facilities in the home is either a Weisway or Weistall leakproof cabinet. Lead pans are not required with Weis shower cabinets. The enterprising plumber will take advantage of this collection of facts and make a profit for himself while he is building a list of highly satisfied customers. Let us tell you the whole story about Weis shower cabinets. Write today. . . . . .



HENRY

ESTABLISHED **WEIS** *1876*

MANUFACTURING CO., Inc.

SHOWER CABINET DIVISION

701 Oak Street - - Elkhart, Indiana

Converting these furnace or stove heated houses to a steam or hot water heating system . . . adding extra radiators to garage or third floor rooms of homes already equipped with hot water boiler systems . . . here indeed is a vast potential market for progressive plumbing and heating contractors who are looking for new and profitable business.

Moreover, the fact that pipe, boiler and radiator manufacturers are pushing remodeling opportunities in this field offers an excellent opportunity for you as a contractor to cooperate in this movement. Cultivate the home owners in your territory, advertise your service suggestions—get behind this plan —make it a success.

Of course, this business will call for new runs of pipe, several hundred feet of pipe being required for each installation. Let the easy bending, easy threading and easy working qualities of "Central" Steel Pipe help you save time and labor in making your installations.

CENTRAL TUBE COMPANY
PITTSBURGH, PA.

CENTRAL

STEEL PIPE

Another FAIRBANKS-

NEW DEEP WELL
WATER SYSTEMS

NEW PRODUCT FEATURES
NEW LOW PRICES

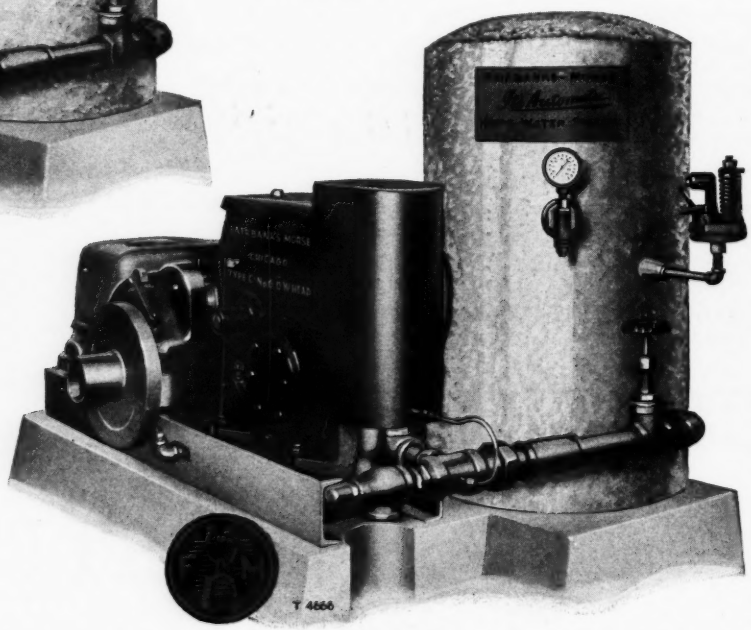
TO THE DEALER who has watched his volume and his profits shrink—to the dealer who realizes that *old* products at *old* prices will not sell in today's markets—Fairbanks-Morse addresses this important story of Home Water Systems.

First—*a brand-new line of water systems—shallow well—deep well*—electric motor or engine driven. And *more value per dollar* packed into each of these units than you have ever been able to offer your trade before.

The dealer who inspects this new line of F-M Home Water Systems must inevitably come to the conclusion that its features—its values and its prices will give him a greater leverage on profitable volume than has ever been available to him before. New prices make for the dealer prospects that never existed heretofore.

The new F-M line is making history in the industry. Dealers are deciding *now* that business discretion is to sell *with* the F-M line and not against it.

(*Above*)
F-M Electric Driven Type "C" Deep Well Water System. *Complete* with pump, top-mounted motor, tank, pipe and control equipment ready to receive drop pipe and house service connections.



(*At the Right*)
The New F-M Self-Oiling Type "C" Water System arranged with 1½ h.p. "Z" Engine drive. A complete package unit, including tank, piping and control equipment.

MORSE ANNOUNCEMENT

NEW SHALLOW WELL
WATER SYSTEMS

The "CHALLENGER"

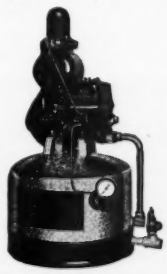
$59.50

list price f. o. b. factory. A complete, automatic system of 200-gal. per hour capacity. Other F-M Water Systems are similarly priced so you can get the business.

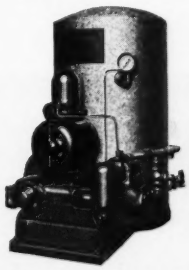
GREATLY INCREASED DEALER MARGINS

THE new line of F-M Water Systems carries with it an equally attractive dealer proposition, also in keeping with the times. *Widened margins of profit for the dealer!* A careful study of the F-M Dealer proposition will convince you of its many features that only Fairbanks-Morse *can* offer and is offering.

The coupon at the bottom of this page will enable you to get full information quickly and conveniently. It is just not good business to continue selling water systems without at least knowing what Fairbanks-Morse can offer you. Use the coupon to secure new catalog for dealers—just off the press. Contains full information on home water systems and valuable engineering data for dealers.



The New F-M 250-gallon per hour system with 12-gallon tank.



The New F-M 500-gallon per hour duplex pump with 35-gallon tank.

FAIRBANKS, MORSE & CO.

Manufacturers, Chicago, U.S.A.

Branches and Service Stations Covering Every State in the Union

-----PIN THIS COUPON TO YOUR LETTERHEAD-----

FAIRBANKS, MORSE & CO.
Dept. I-7, 900 S. Wabash Ave., Chicago, Ill.
Gentlemen: Please send me full details about your dealer proposition on F-M Home Water Systems. *Also send copy of new dealer catalog.*

Name.....

Address.....

City.....*State*.....

PUTTING EXTRA SERVICE IN PIPE INSTALLATIONS

J&L PIPE

The long life and trouble-free performance of J & L Pipe installations are due to the uniformly excellent quality of the product and the accuracy with which it may be made up.

J & L Pipe comes to you straight and free from excess scale. Mill threads are cut accurately, with just the right pitch and taper, and couplings are tapped with extreme care to produce tight joints. Uniformity of the steel used in its manufacture makes J & L Pipe easy to bend, without suffering damage, and assures free cutting for threading on the job. On galvanized pipe, the coating is uniformly heavy and effective, both inside and out.

If you have not used J & L Pipe, specify it for your next job and learn why this quality product puts extra service in pipe installations.

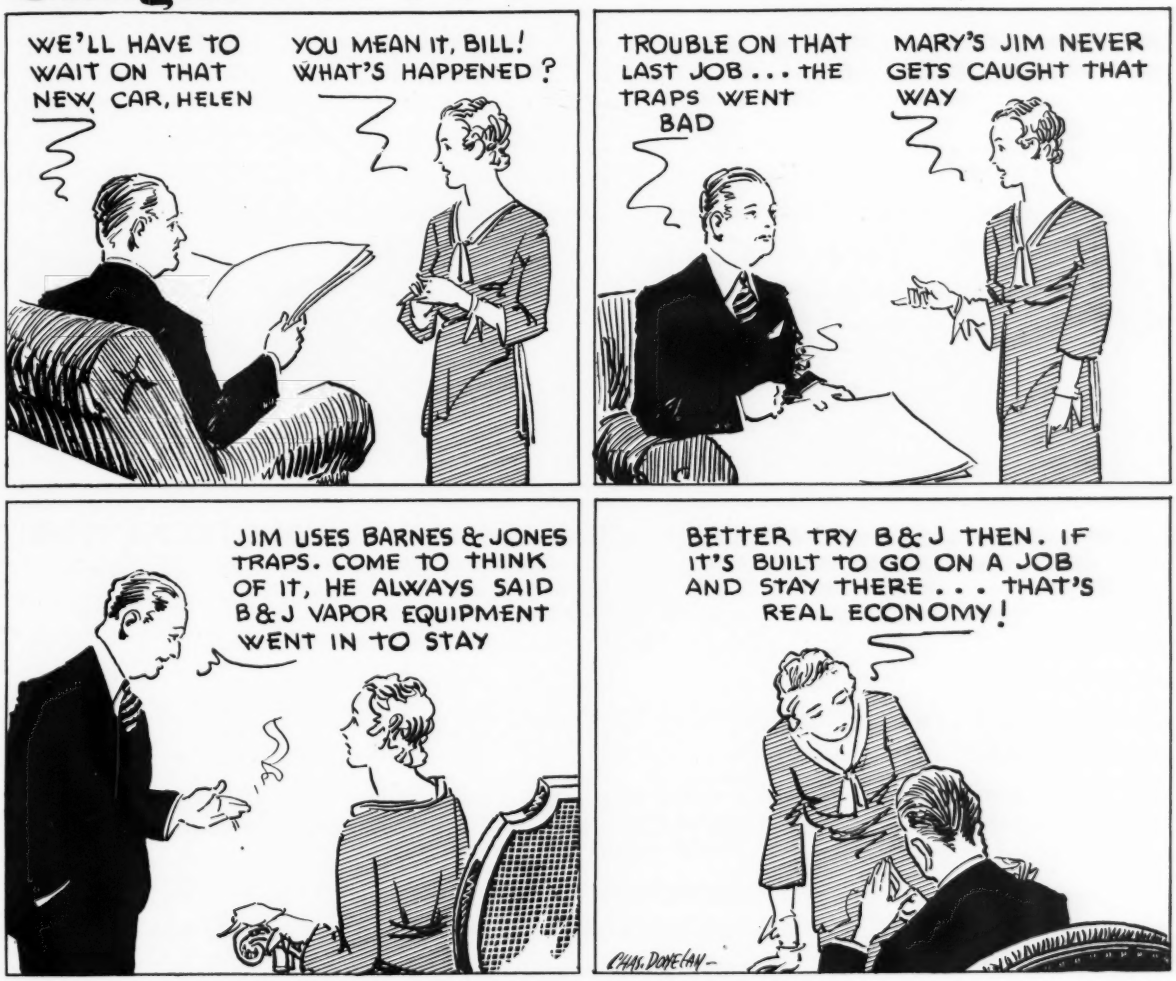
J&L CONSTRUCTION PRODUCTS

LIGHT WEIGHT ROLLED CHANNELS
JUNIOR BEAMS — STEEL PIPE
BARS for CONCRETE REINFORCEMENT
STANDARD STRUCTURAL SHAPES
STEEL PILING — NAILS — TIE WIRE
FABRICATED STRUCTURAL WORK
including Steel Plate Construction

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

Caught . . . . . .


WE'LL HAVE TO WAIT ON THAT NEW CAR, HELEN
YOU MEAN IT, BILL! WHAT'S HAPPENED?
TROUBLE ON THAT LAST JOB . . . THE TRAPS WENT BAD
MARY'S JIM NEVER GETS CAUGHT THAT WAY
JIM USES BARNES & JONES TRAPS. COME TO THINK OF IT, HE ALWAYS SAID B & J VAPOR EQUIPMENT WENT IN TO STAY
BETTER TRY B & J THEN. IF IT'S BUILT TO GO ON A JOB AND STAY THERE . . . THAT'S REAL ECONOMY!
CHAS. DONEHAY

¾ in., 1 in. and 1¼ in. modulation valves with capacities of 60, 100, and 180 sq. ft. respectively.

92% repeat orders in 9 years for B & J vapor and vacuum equipment means but one thing—satisfied users. Satisfied because B & J equipment goes in and stays. Those who install it know. Bulletin?

BARNES & JONES, Inc.

127 Brookside Ave. Jamaica Plain, Boston Mass.

Thermostatic traps: sizes ½ in., ¾ in., 1 in. and 1¼ in. Angle and straight way patterns all sizes.

7-30

You should have this Catalog

BARNES & JONES, Inc.
127 Brookside Ave., Jamaica Plain, Boston, Mass.
Send, without obligation, your book describing Barnes & Jones Vapor and Vacuum Systems of Heating.

Name.....

Company.....

Street..... City.....

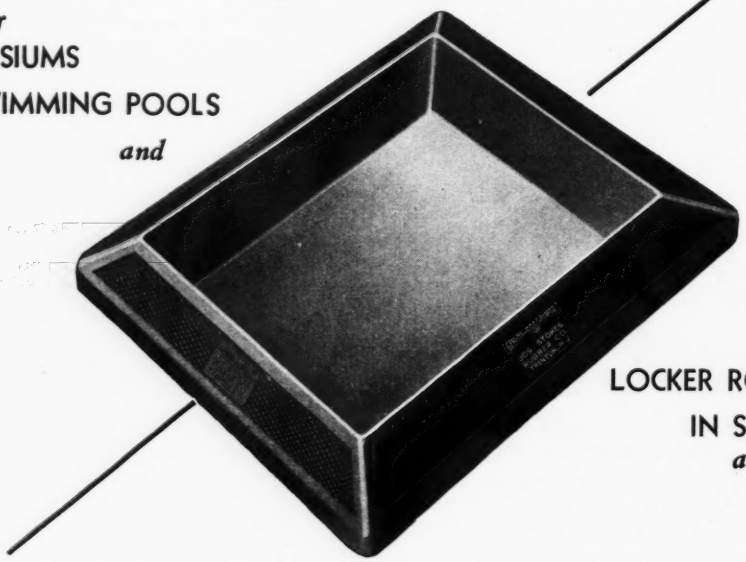
State.....

448

—here is SOMETHING NEW

for the enterprising dealer

for
GYMNASIUMS
SWIMMING POOLS
and



LOCKER ROOMS
IN SCHOOLS, CLUBS
and COLLEGES

STOKES GIVES PROTECTION from GENUINE HARD RUBBER (S) COPYRIGHT **FOOT BATH** "ATHLETES FOOT"

TODAY you must keep one step ahead of the other fellow if you are to go on doing business. No man with any vision whatever will be content to wait for business to come to him—he will go after it, and with the help of NEW MERCHANDISE.

AN EXTRAORDINARY OPPORTUNITY

is yours RIGHT NOW. This Stokes Hard Rubber Foot Bath opens up new and unlimited fields for trade.

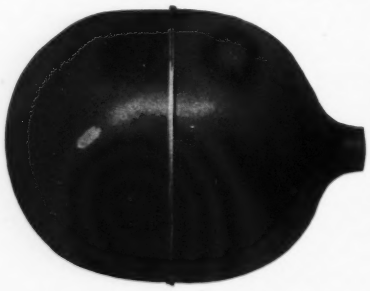
THIS STOKES HARD RUBBER FOOT BATH

is designed to be "good looking," it is strong! and no material RESISTS ACID like STOKES HARD RUBBER. The use of STRONG SODIUM HYPOCHLORITE SOLUTION will not affect it in the least.

TAKE UP THIS PROPOSITION TODAY

for there is an opportunity here for you, that is unusual and one that is PROFITABLE.

WRITE FOR INFORMATION and further details



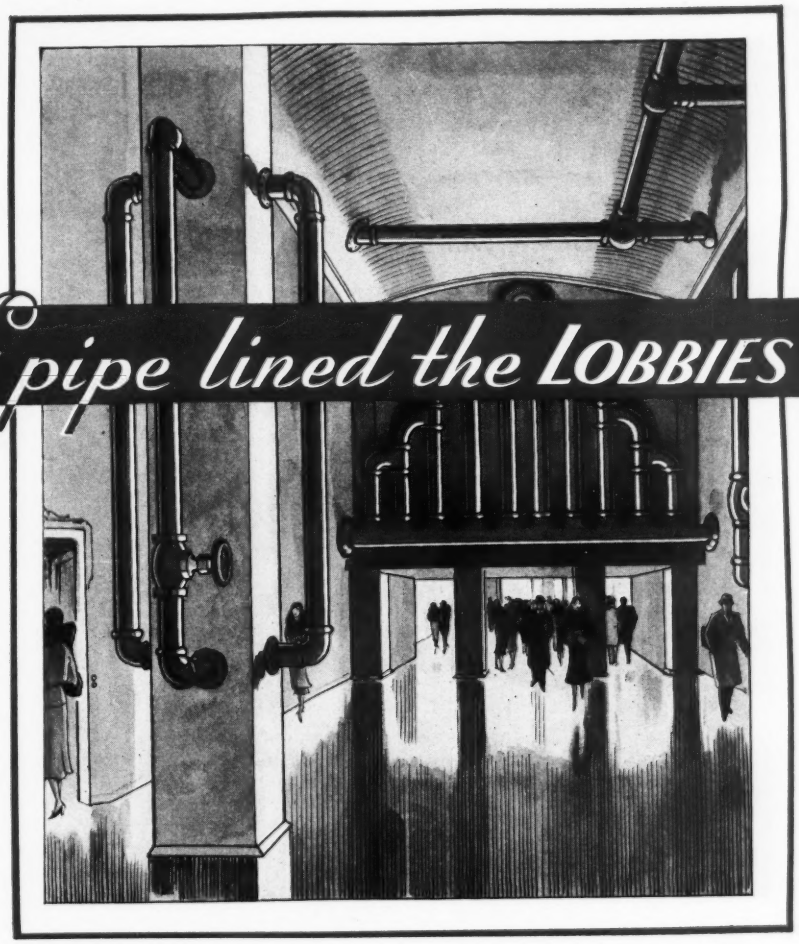
Plumbers have found that Float Balls made of STOKES HARD RUBBER are better than any other kind. They may safely be guaranteed for the life of the tank.

Jos. Stokes RUBBER CO.
Trenton N.J.
Canadian Plant: Welland, Ontario

STOKES HARD RUBBER FLOATS

HARD RUBBER IN EVERY CONCEIVABLE FORM — MOULDERS OF PLASTICS

If pipe lined the LOBBIES

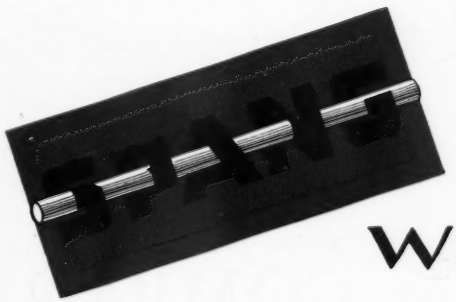


more attention could not be paid to its manufacture . . .

"SPANG" WELDED STEEL PIPE is manufactured with the same minute care that an artist would use in painting a fresco in the lobby of a fine building.

Precision and craftsmanship enter into every step of its manufacture. Every length is individually produced, individually inspected and individually tested in a series of systematic steps that assures the utmost dependability. Every length is qualified to meet the closest scrutiny of the most critical.

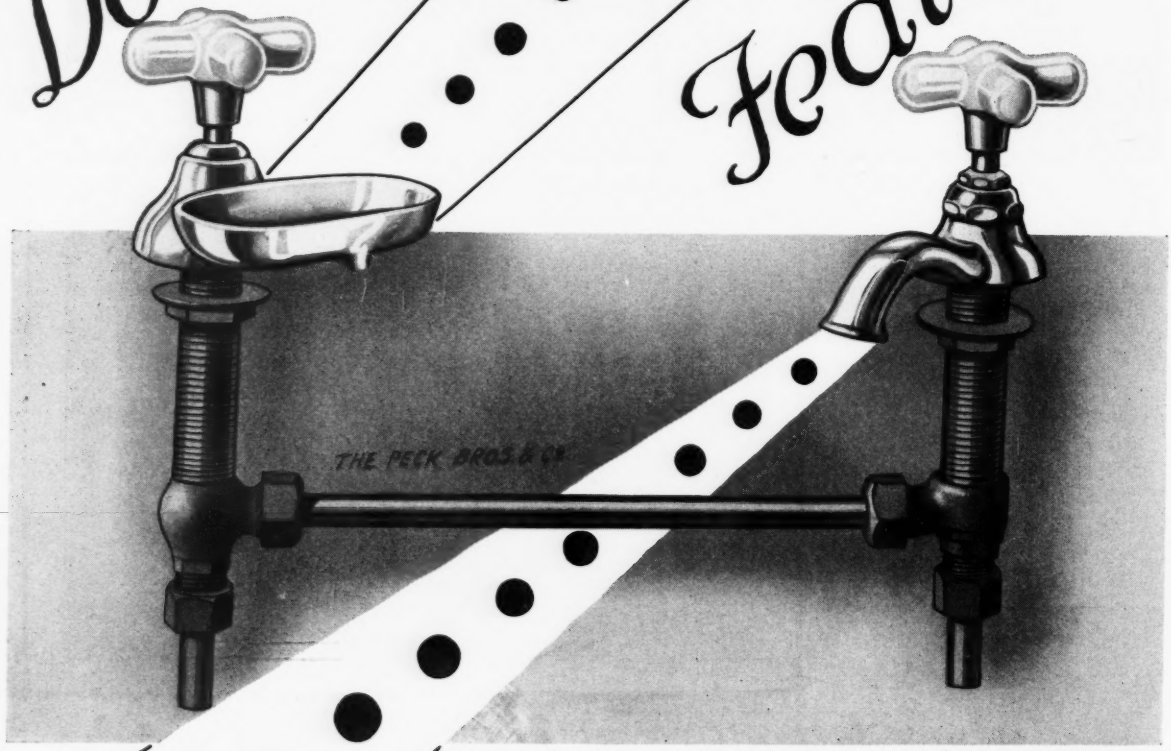
That is why you can specify "SPANG" with the utmost confidence at all times—why "SPANG" enjoys a nationwide acceptance among leading architects, contractors and engineers.



SPANG, CHALFANT & CO., INC.
GENERAL OFFICES, CLARK BUILDING
PITTSBURGH, PA.
Sales Offices: New York, Boston, Pittsburgh, Chicago, St. Louis, Tulsa, Los Angeles, Dallas, San Francisco
Welded Mills: Etna, Penna., Sharpsburg, Penna.
Seamless Mills: Ambridge, Penna.

WELDED STEEL PIPE

Double SALES Features

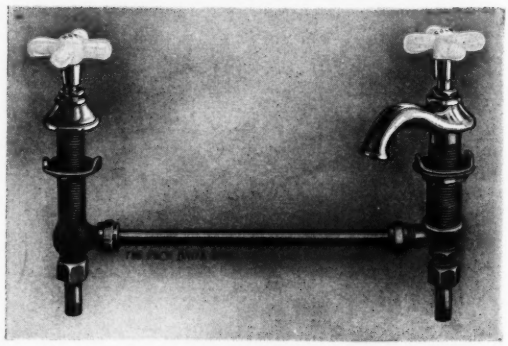


No. 5073A—With Soap Dish
(Patented)

Use this Peck fixture as your leader for developing modernization business. It not only gives the advantages of a single spout at only a little more than two good basin faucets, but also puts the soap dish down where it is most needed and useful.

This Universal Fixture can be used on any lavatory manufactured regardless of the type waste, provided there are two basin faucet holes through the slab.

Peck's Better Brass Builds Better Business



No. 5075A—Without Soap Dish (Patented)

THE PECK BROS. & COMPANY

127 CHESTNUT STREET NEW HAVEN, CONN.

A RUST-PROOF RIGID COPPER WATER SYSTEM

CHASE

for little more than threaded iron pipe

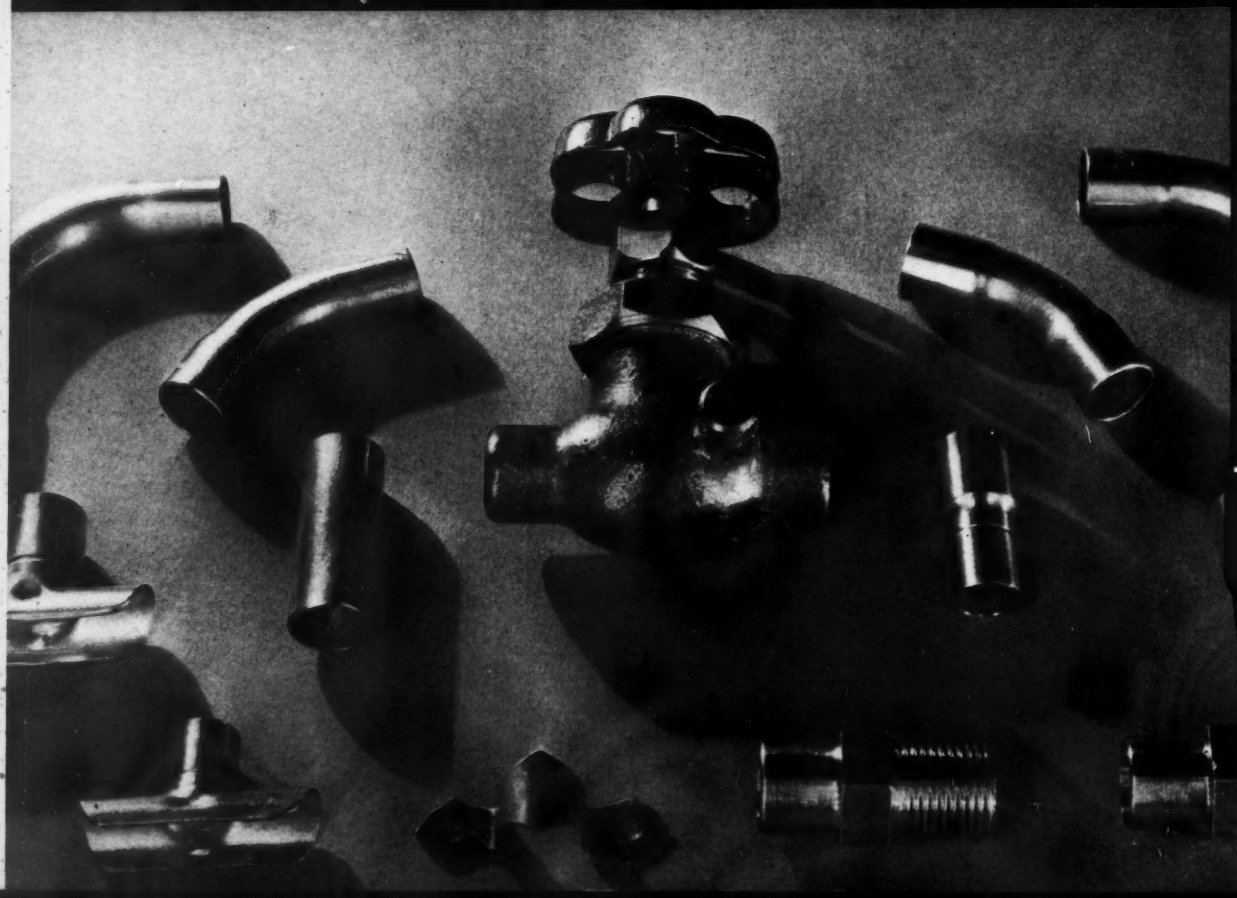
for instance

Instead of a bitterly competitive bid for ordinary rustable pipe, you can offer a copper, forever-free-from-rust job that does you credit, for only a few dollars more.

So instead of fighting it out on *price*, you win out with a suggestion that pays the owner—and pays you well too!

Often the Chase Sweat Fitting Job figures even more favorably because of time and material savings.

HERE ARE THE NEW CHASE COPPER SWEAT FITTINGS

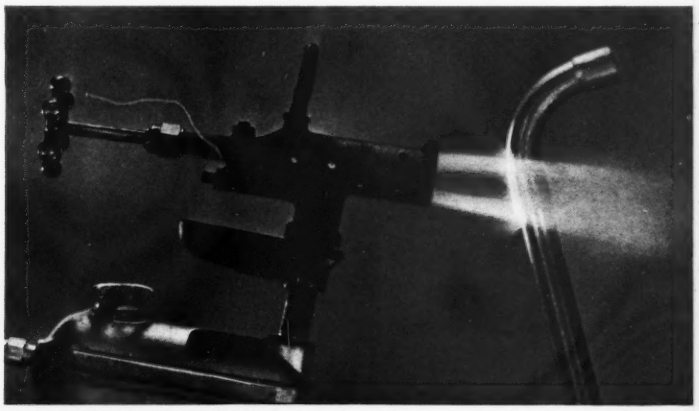


HERE'S HOW CHASE SWEATS COPPER *to* COPPER

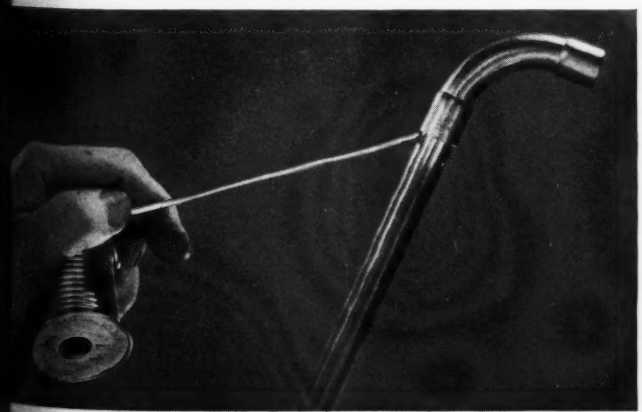
1. FIRST . . . THE STEEL WOOL. *A few seconds' rubbing with No. 00 steel wool polishes end of Chase tube where joint is to be made. Now pick up the Chase Sweat Fitting.*

2. FITTING COMES CLEAN *on the inside after easy rubbing with wool. (For tees you cut an opening in the tube using a Chase Template.) Now we're all set.*

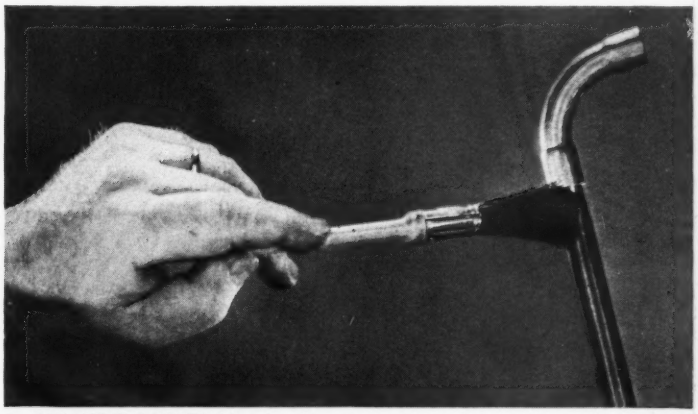
3. ON WITH THE FLUX—*just a thin even coating of non-corrosive (NOKorrode recommended) soldering paste on all surfaces to be sweated —outside of tube, inside of fitting.*



4. MOVE BLOW-TORCH *back and forth over connection. Evenly. Don't overheat and burn out flux. Remove torch occasionally, and touch Chase Wire Solder to joint. When a drop melts, temperature is right. Okay, then—*



5. SOLDER IN ANY POSITION! *An old law of nature—capillary attraction—instantly spreads solder all around and pulls it completely up in joint. The joint tins itself all the way up.*



6. NEATLY DONE! *Slightly reheat connection to make extra-perfect joint. Remove surplus solder with a dry brush.*

THE FEW TOOLS YOU NEED TO CARRY . . .

There's no heavy investment in tools when you're going to a Chase Sweat Fitting job. Pack a hacksaw, template, sizing tool, flux, wire solder, steel wool, blow torch . . . and you're ready to go.

THE FEW FACTS YOU NEED TO KNOW . . .

BECAUSE the tube and sweat fittings are made to close tolerances, capillary attraction spreads the solder all around and pulls it completely up into the heated joint. The joint tins itself.

The Sweat Elbows and Couplings are as strong as the tube. They are made of the same seamless copper tube.

There are no threaded joints to leak.

In tests, nearly 2 tons (3800 pounds) of pull failed to separate Chase Copper couplings sweated to this hard-drawn half-inch Chase Copper Tube.

Water under pressure in an assembly of half-inch Chase Tube and Fittings produced no sign of leakage or bursting—*even at 5000 pounds pressure per square inch.*

Finally, the male and female adapters are not cast but wrought from solid red brass rod.

NOW SWEAT ONE ON THE HOUSE!

CHASE BRASS & COPPER COMPANY, Inc.
Waterbury, Connecticut

I'd like to make a Chase Copper to Copper sweated joint myself, to see if it is all you say. Mail me the FREE test materials.

*Name*_____

*Address*_____

*City*_____ *State*_____

FREE SWEAT KIT!

first roll call

for money makers

If you are interested in making money this Fall ...willing to put in some effort to make it... prefer to go out *for* business instead of out *of* business...you'll mail this coupon today to receive first announcement of our Big Fall Modernization Campaign.

AMERICAN RADIATOR COMPANY
40 West 40th Street, New York
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

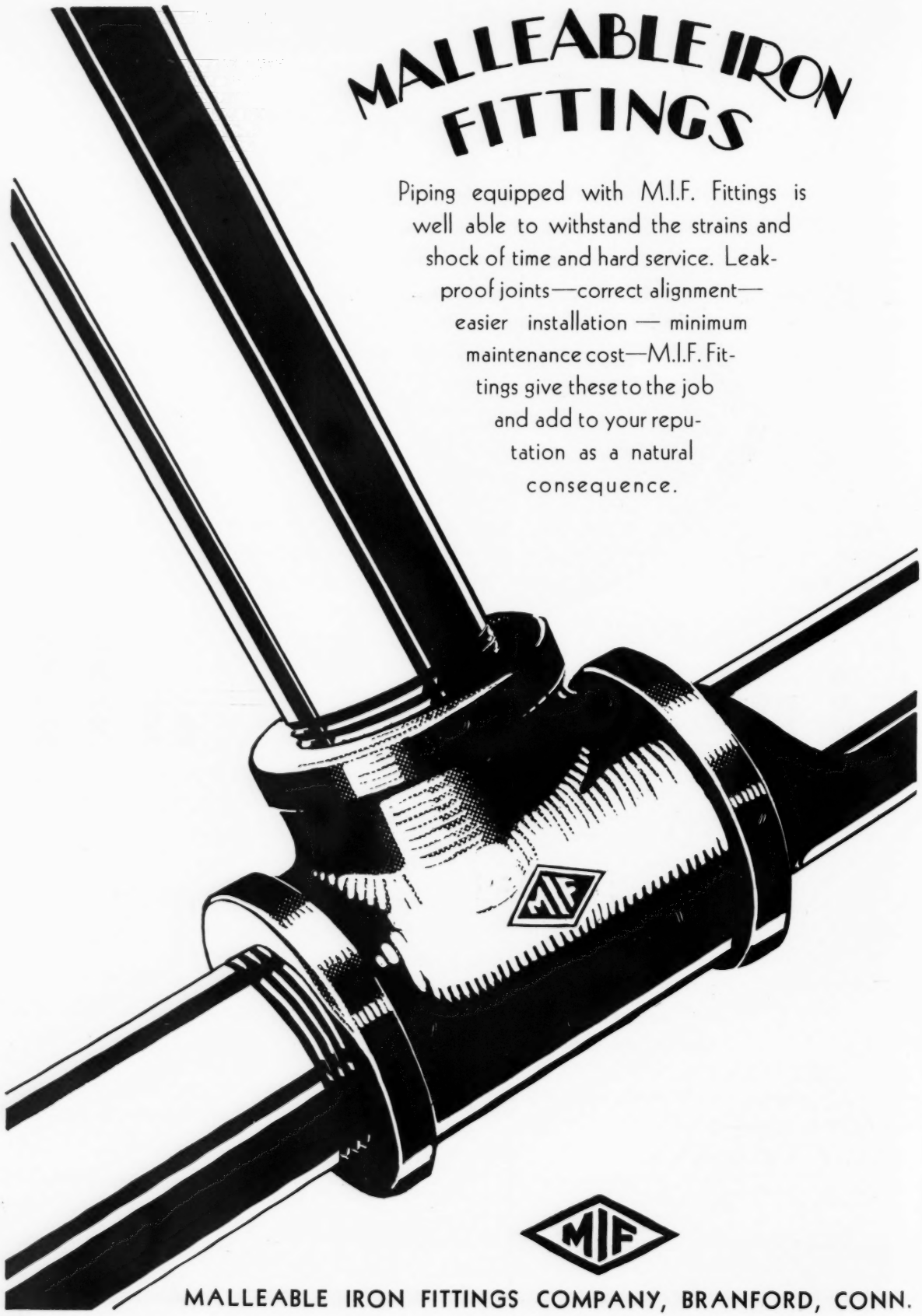
STEP ON IT! • SEND IN THIS COUPON

AMERICAN RADIATOR COMPANY
40 W. 40th St., New York.
Put me down as one of those who are going out after business with your Modernization Campaign.

NAME .....
ADDRESS .....
CITY .....

MALLEABLE IRON FITTINGS

Piping equipped with M.I.F. Fittings is well able to withstand the strains and shock of time and hard service. Leak-proof joints—correct alignment—easier installation — minimum maintenance cost—M.I.F. Fittings give these to the job and add to your reputation as a natural consequence.



MIF

MALLEABLE IRON FITTINGS COMPANY, BRANFORD, CONN.

ANNOUNCING

BURKS
SUPER-TURBINE
PUMPS
Only one moving part

The World's Newest and Finest
BURKS
SUPER
TURBINETTE WATER SYSTEM

$89.00 LIST

Fig. 8763-25

BURKS
SUPER
TURBINETTE
WATER SYSTEM
FULLY COVERED BY PATENTS AND PATENT APPLICATIONS

SPECIAL FEATURES

DESIGN—A startlingly new Turbine Type Water System, destined to dominate the Domestic Water System field on sheer merit alone! It is distinguished quite as much by the absence of cumbersome parts and weaknesses as it is notable for its *many new exclusive features.* In design it is smart and ultra-modern, in full keeping with latest engineering practice and trend. Its extreme simplicity, neatness and compactness are outstanding.

POSITIVE AIR-VOLUME CONTROL—A new Burks device that positively maintains automatically, under all operating conditions, the proper air-water ratio. Functions perfectly, even with a positive suction head. Overcomes completely the danger of failure common to other air controls now on the market.

HYDRAULICALLY BALANCED PUMPING UNIT—The pumping unit is a full-blood brother of the famous Burks Super Turbine Pumps with which you are already familiar. Only one moving part. Noiseless in operation. Stainless steel shaft. Impeller and raceway of cast bronze. All ball bearings sealed in oil.

NO PACKING GLAND—Pump and motor assembly hermetically sealed in galvanized tank. Thus is eliminated all need for a packing gland. Entire unit absolutely leak-proof and fool-proof.

IDEAL MOTOR OPERATING CONDITIONS—Every speck of dust positively excluded from motor parts. The normal motor heat insures dryness and uniform temperature. Therefore, long and satisfactory motor performance is assured.

ELECTRICAL CONNECTIONS—Motor operates through an extension fitting and cord to any convenient outlet. Automatic pressure switch is mounted rigidly adjacent to the motor, thus making accidental damage impossible. A simple system of terminal contacts, completely housed, eliminates the usual wiring between switch and motor.

POWERFUL SUCTION LIFT—Burks Super Turbine Pumps have always led in ability to function perfectly on extreme suction lift. The Super Turbinette Water System equals them in such performance and is covered by our standard guarantee of 28 feet; thus assuring an extra 6-foot lift! Fully self-priming, pumps air only same as water to the full pressure rating of the pump!

Motored By Emerson

CAPACITY 300 TO 400 GALLONS PER HOUR
Now Available With ¼ H. P. 60 Cycle 110 Volt A. C. Motor
Write for Special New Discounts

DECATUR PUMP COMPANY DECATUR, ILLINOIS.

A STATEMENT OF AMERICAN BLOWER POLICY

in the Sale of

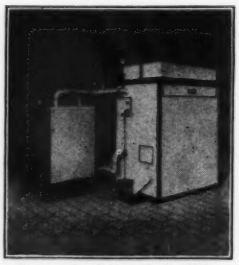
Air Conditioning Equipment

THE AMERICAN BLOWER CORPORATION is not in the contracting business; neither does it offer architectural or professional engineering service. We are fundamentally a manufacturing organization. Our policy for the sale of air conditioning equipment remains as heretofore; namely, distribution through the established channels of the contracting trade, collaborating with the architect and consulting engineer in its design and application. The activities of our sales, advertising, engineering, research and manufacturing departments will be directed toward that end.

O. M. Rose
Vice President

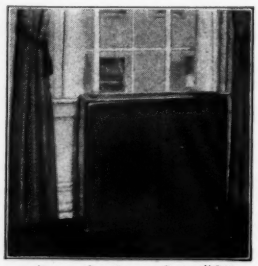
AMERICAN BLOWER CORPORATION, DETROIT, MICHIGAN
CANADIAN SIROCCO CO., LIMITED, WINDSOR, ONTARIO
BRANCH OFFICES IN ALL PRINCIPAL CITIES

American Blower
VENTILATING, HEATING, AIR CONDITIONING, DRYING, MECHANICAL DRAFT



Sirocco Conditioner Series "R"
for Homes

Central Sirocco Systems for
Industry and Public Buildings

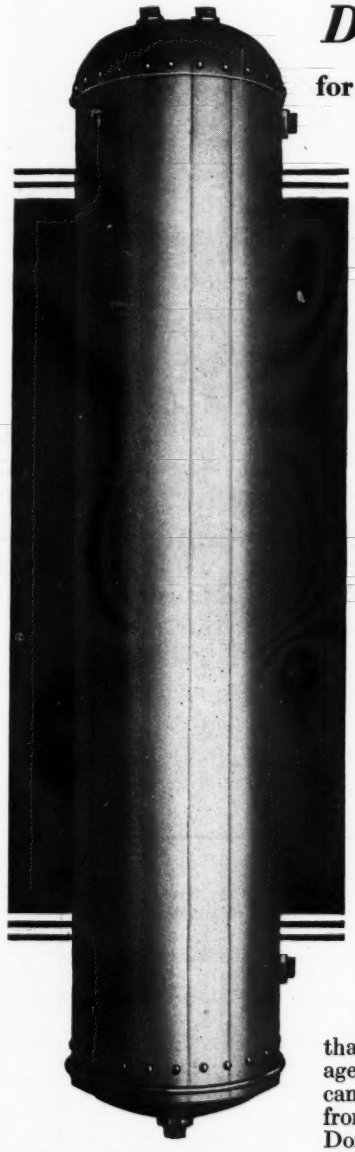


Sirocco Conditioner Series "O"
for Business

Introducing a new improved

Domestic COPPER RANGE BOILER

for Reduced Bottom Failure and Natural Removal of Sediment

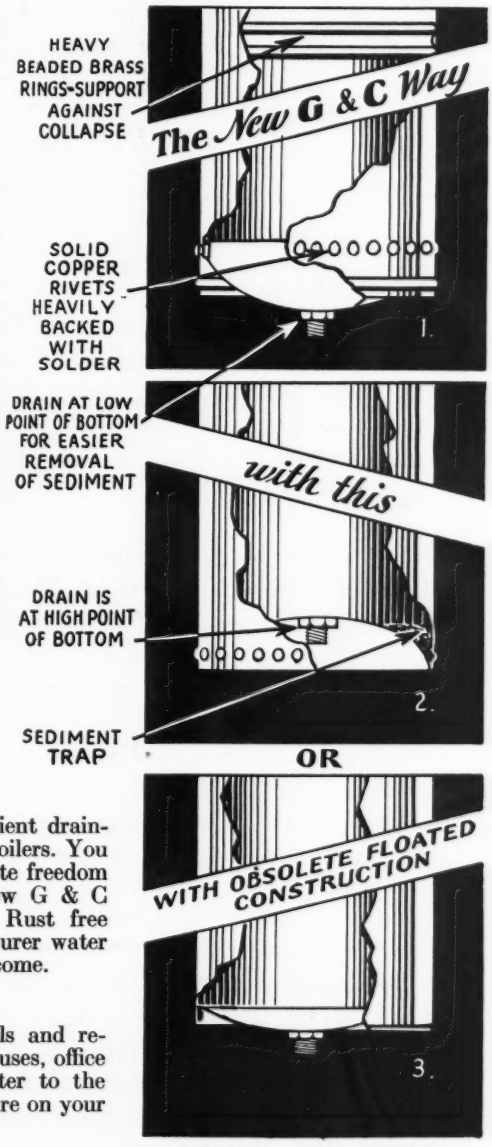


HERE is an improved type boiler that will break down consumer sales resistance and simplify sales problems for the dealer!

No effort or expense has been spared to make the G & C DOMESTIC COPPER RANGE BOILER the finest constructed, most sanitary boiler ever perfected. Compare the improved construction of the New G & C Domestic Copper Range Boiler with that of other types (see illustrations at right.) Note convexed bottom (figure 1). The bottom is joined to the shell by solid copper rivets, heavily backed by solder, a vast improvement over the obsolete, locked and floated type, (figure 3.) This means higher tensile properties and an impressive appearance of greater strength.

The drain at the lowest point of the convexed bottom eliminates any sediment trap, thus doing away with the dirty, rusty water that frequently results from inefficient drainage of sediment in ordinary type boilers. You can assure your customer of absolute freedom from this annoyance with the New G & C Domestic Copper Range Boiler. Rust free pipes, longer service and cleaner, purer water are features your customer will welcome.

COMPARE!


HEAVY BEADED BRASS RINGS-SUPPORT AGAINST COLLAPSE
The New G & C Way
SOLID COPPER RIVETS HEAVILY BACKED WITH SOLDER
1.
DRAIN AT LOW POINT OF BOTTOM FOR EASIER REMOVAL OF SEDIMENT
with this
DRAIN IS AT HIGH POINT OF BOTTOM
2.
SEDIMENT TRAP
OR
WITH OBSOLETE FLOATED CONSTRUCTION
3.

TANKS OF ALL SIZES
Made to Your Specifications

We are equipped to manufacture large storage tanks with coils and removable heating units for hotels, hospitals, schools, apartment houses, office and industrial buildings. Our tanks now supply clean, hot water to the occupants of many of the country's largest buildings. Let us figure on your next installation.

CONSULT YOUR JOBBER

BOILERS
TRADE MARK REGISTERED

GERSTEIN & COOPER CO.

Factory at 1-3 West Third Street, South Boston, Mass.

NEW YORK CITY — BALTIMORE, MD. — MONTREAL, P. Q.

Troop Water Heater Co., Pittsburgh, Pa. — Strong, Carlisle & Hammond Co., Cleveland, Ohio

Put on a Summer Drive!

THOUSANDS of homes throughout the country will be improved during the summer. New plumbing, automatic heat, new radiation, refrigeration and hundreds of smaller pieces of plumbing and heating equipment will be purchased.

The "Spend for the Home" drive will direct much of this business to you. The "Spend for the Home" material enables you to put on a summer drive for business at a very low cost.

DOMESTIC ENGINEERING has prepared, at great expense, a wealth of advertising and selling matter based upon this drive. You can use this matter any way you wish. However you use it, it will mean MORE BUSINESS to you.

It will enable you to tie up with the effort of thousands of other retailers serving the home; retailers who are now and have been using the "Spend for the Home" idea to increase their sales.

Equip yourself to put on a summer drive. Start now. Get your share of the remodeling dollars—and the new construction dollars—that will be spent.

Use the "Spend for the Home" cards, stickers, electrotypes in your show windows, store, on your truck, your automobile, in your newspaper ads, your sales letters. Watch each issue of DOMESTIC ENGINEERING for other selling ideas.

GET your supply of this material today. Here are the prices of the window cards or posters, size, 8¼x12 inches.

The prices of these cards are as follows:

10 cards for 50 cents
25 cards for 75 cents
50 cards for $1.25
100 cards for 2.00
500 cards for 9.00
1000 cards for 17.00

We cannot undertake to ship less than 10 of these cards.

Stickers of the slogan, in the same design as shown above but of 1¼ in. x 2 in. proportions are also available. Order these stickers. Use them on your letterheads, envelopes, billheads, business cards, etc., etc.

The prices of the stickers are as follows:

1000 stickers for $1.50
2000 stickers for 2.50
5000 stickers for 5.00

Get a supply of cards and stickers now.

Electrotypes of various sized cuts of the slogan are also available. These can be had for one and two-color printing. Electrotypes are priced as follows:

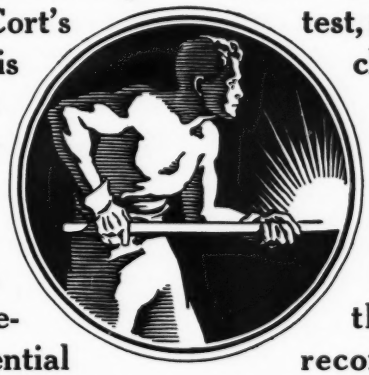
Electro for one-color printing, 1½x2⅜ in.....$0.35
Electro for two-color printing, 1½x2⅜ in..... .65
Electro for one-color printing, 3½x5½ in..... .55
Electro for two-color printing, 3½x5½ in..... 1.00
Electro for one-color printing, size approximately 8x12 in..... 2.50
Electro for two-color printing, size approximately 8x12 in..... 4.50

Order what you need to get in on this big drive now.

DOMESTIC ENGINEERING 1900 PRAIRIE AVE., CHICAGO

WHY
Reading Puddled Iron Pipe is BETTER than ever before

In the early 1830's, Cort, noted English Engineer designed the first puddle furnaces using coal as fuel. Such furnaces produced the metal which has made wrought iron famous for its high resistance to corrosion and fatigue. The furnaces in which the metal for Reading Puddled Iron Pipe is made, are built on Cort's designs. Reading metal is puddled by hand as Cort planned and as Time has proved to be best.



More Than That

Reading Puddled Iron is better today than ever before because to the essential processes developed by Cort, Reading adds scientific control of production with rigid and exacting inspection of raw materials, processes and finished pipe unknown in the past.

In making Reading Pipe, Reading's superintendents have the advantage of high-grade iron ore from Reading's own iron mines. They control pig iron production in Reading's own blast furnaces. Under them is a force of puddlers trained in the Reading plant, many of them being the fourth generation of iron puddlers trained in the Reading mills. Throughout the making of Reading Pipe they test, inspect, and maintain the closest possible scientific control.

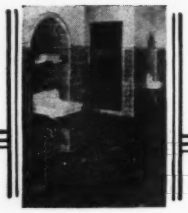
That's Why

Today you buy better Reading Puddled Iron Pipe than any of the pipe that has set the service records for which wrought iron is so famous. You can install it with greater certainty of receiving trouble-free service than even past generations could. A few dollars more for the average pipe installation, assures you of lower cost per year of service. If you need really GOOD pipe for any service, consult us.

READING IRON COMPANY, Philadelphia

READING PIPE
PUDDLED IRON
Since 1848

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron



BETWEEN OURSELVES

Now's the Time

IF you step to one side for a few minutes and look at this plumbing and heating business, you will find something new about it that you have never observed before. And best of all, it will reveal to you that now's the time when opportunity is knocking at the doors of those who are willing to listen and learn.

Something New

YOU will observe from your place at one side of the road, many of the old familiar problems. Some of these look as troublesome as ever. Some show signs of having been whipped into line so that you can work with them to better advantage. But just now we are looking at a new face in the parade.

Meeting the Problem

IT is interesting to see where this newcomer came from. Let's look at him from the manufacturer's viewpoint. A couple of years have rolled along with their record of declining business. Every effort to push and promote the old products met with increasing resistance. So what would you, if instead of being a dealer you were in the manufacturer's place, do about it. Try to develop something new, of course.

Manufacturers Make Changes

AND that is what most of the makers of plumbing and heating products have done. They have either improved an older product to make it better, or cheaper, or to adapt it for a different service. Or they have worked out a new device, possibly cheaper or better. Or in some cases, manufacturers from other fields have entered ours in an effort to find business.

The Dealer's Needs

AS a dealer, you know your own viewpoint. The big operator has had less to do. The merchant plumber needed a flood of new ideas and items. The jobbing operator wanted something to bolster his business.

Helping Each Other

SO here we have the manufacturer and the dealer on a common battlefield, each depending upon the other to start something. And the June issue of DOMESTIC ENGINEERING, showed how well the manufacturers had been working. This issue shows more evidence of the new products which are adapted for sale in today's market.

Study New Products

IN this page of informal chatting with our reader, we are coming back to things that we said on this page last month—but what has happened in those four weeks, shows it means business for every dealer to do just what was suggested, inform himself on the hundred and one new products just brought out for today's conditions.

A Sensible Plan

THEN we offered a simple, workable sales plan to make your new sales work more effective. As one reader wrote us a few days ago, "your plan is inexpensive and just common sense." It is being used by our readers and the leading article, starting on page 36, shows it works.

How to Use the Plan

EACH dealer has many customers, so we first ask you to put down the names of only ten people who have the ability to buy something they need. Then from our June issue, pages 31 to 62, in which about 85 new items were shown or from this issue, pages 41 to 48, check each new product against each of these ten prospects. Every prospect will need at least one of these new items, some will need several.

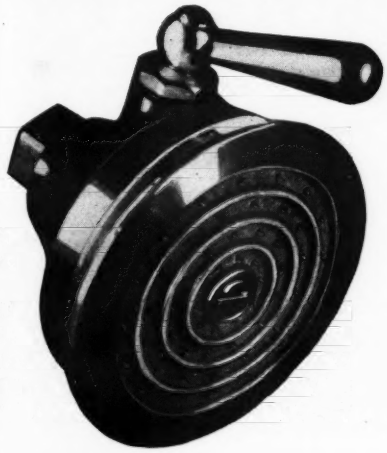
And Get Business

SO here's the new face in the industry. A wealth of new products, with a new standard of price and usefulness. A simple plan which DOMESTIC ENGINEERING has tested. And for you, a new list of prospects and products.

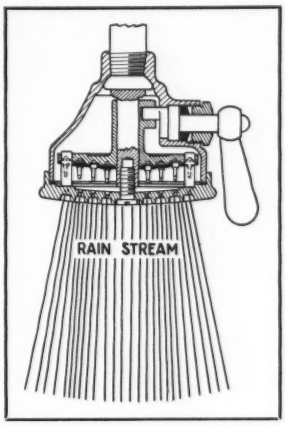
Your Editor

The Culmination of Years of Research in Shower Head Problems . . .

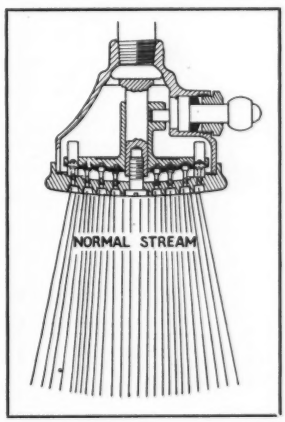
A POSITIVE-CLEANSING SHOWER HEAD



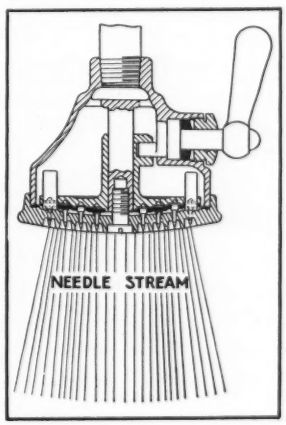
THE Mueller H-5400 Positive-cleansing shower head (patent pending) has fifty-four (54) floating chrome nickel stainless steel tapered pins inserted in a plate, attached to a yoke, operated by a lever handle. As the pins move in and out they *punch out* all water encrustments such as lime, alkali and corrosion from the holes in the face of the shower head.



Exhaustive experiments have proven conclusively that such encrustments can not be *flushed* out.



Rotation of the handle inducing movement of the tapered pins through the holes in the face of the head controls volume, forming different sized streams which range from a rain shower to a stinging needle stream. The pins, not being rigid, float to center, producing even, unbroken streams.

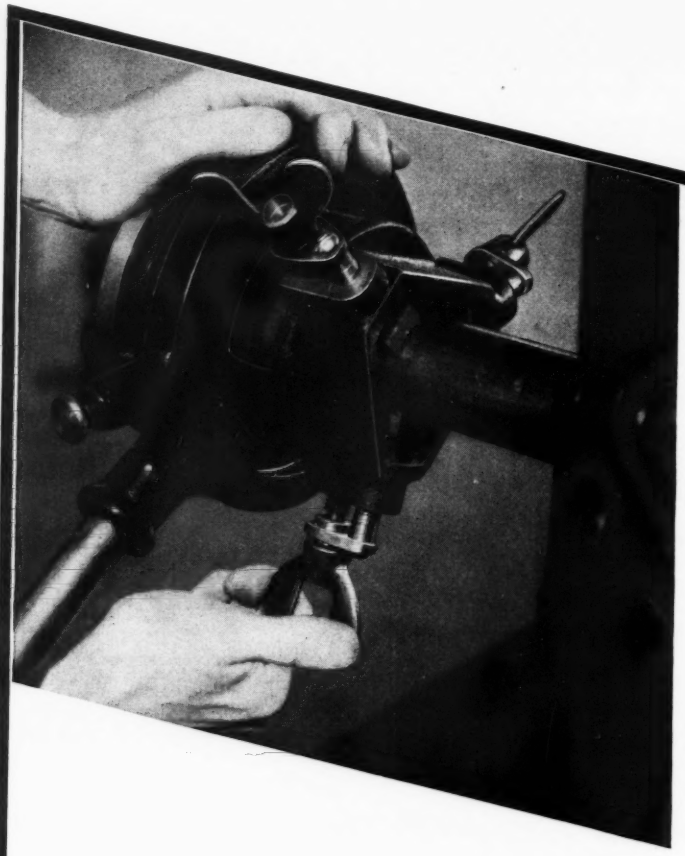


For further details, write for booklet on the new Mueller Positive-cleansing variable stream shower head.

MUELLER CO.

DECATUR, ILLINOIS

NEW YORK SAN FRANCISCO



No Bushings—Easy Quick, Accurate Centering—Always Perfect Tapered Leak-proof Threads.

TRADE-MARK

Truly—They're Great Tools, The New "TOLEDO" Super-Threaders

Cut the pipe off crooked if you wish. Slip on a new "TOLEDO" Super Threader Quickly center the tool, and those large wing-head thumb screws you see in the picture enable you to clamp down the broad-face chuck jaws rigidly to the pipe.

No matter how crooked the pipe cut may be, you are assured smooth perfect tapered threads and tight leak-proof joints either on iron, steel, brass or copper pipe. No mars on polished pipe—no bushings to bother with.

These new "TOLEDO" Super Threaders are truly great tools for threading 1" to 2" pipe. Use the coupon and let us send you without any obligation on your part complete information with prices.

THE TOLEDO PIPE THREADING MACHINE CO.
Toledo, Ohio **New York Office, 72 Lafayette St.**

PLEASE SEND ME COMPLETE INFORMATION ON THE NEW "TOLEDO" SUPER-THREADERS.

NAME.....

STREET.....

CITY.....

STATE.....

MY DEALER IS.....

OUR INDUSTRY

An Unusual Record

IN A comparatively young country such as the United States, institutions with records extending 25 or 50 years back into the past are relatively few. It is taken as a measure of our progress that change is inevitable so that few companies in the entire country can celebrate their 50th or 75th anniversaries, few associations can measure their existence in more than a score of years.

Recognition is consequently due to the master plumbers for what is thus an unusual accomplishment, the holding of their golden anniversary national convention last month in New York. This 50th meeting, appropriately enough, was held in the same city in which the first few pioneers gathered to form a national body.

These delegates in 1883 approved a statement of purposes, including the promotion of kindly relations among members of the trade; the protection of the trade against imposition and injustice; the advancement of the science and art of the plumbing trade; the fostering of amicable relations with employes; the encouragement of sanitary laws; the securing of equitable treatment from manufacturers and suppliers; the regulation of the system of apprenticeship and the setting of a high standard for plumbing codes.

Dealers Are Active

THE convention of the National Association of Master Plumbers last month was noteworthy in more than its historical sense. To those who have not kept in touch with the recent activities of that organization, the variety of its present day affairs is impressive.

The plumbing dealer, as expressed through the membership of this association, is more alert and aggressive today. It is a reflection both of the added responsibilities which the changing conditions in the industry have put upon the retailer and of the determination for self-help which is evolving from the general business trials of the past two and one-half years.

For the better part of three days, the delegates listened and discussed problems ranging from utility co-operation to minimum code requirements, from handling defective sanitary ware to the handling of salesmen, from increasing membership to increasing sales, and including in their discussions an active questioning of the wholesaler's right to the place he now holds between manufacturer and plumbing dealer.

New Sales Ideas

ANOTHER significant note of direct importance to everyone in the plumbing and heating industry was found in the exposition. Although in some ways not as elaborate as earlier exhibitions, the feeling of the exhibitors and visitors, was one of enthusiasm. It meant more than the customary congratulations in the stir and bustle of a large exhibition.

So many manufacturers of plumbing and heating goods have finally evolved products which they feel are especially suited for today's market in the line of design and price. They were there anxious to test on the dealers the merit of the ideas which had looked so good on the engineering tables and on the sales manager's desk.

And these manufacturers were meeting dealers who were receptive and interested in new sales ideas. The pressure of business conditions in the last two years has led everyone to look for change and improvement of his old methods so that the dealer was as anxious to learn of a new sales help as the manufacturer was to exhibit his.

The success of the 1932 exhibition is thus of direct meaning to all of us. With new and better methods and new and better products, every force in the industry is better equipped to work back to profitable business.

A New Sales Help

IN THIS new relationship between manufacturer and dealer, built around a common need for new sales ideas and weapons, DOMESTIC ENGINEERING has a special service to give. We met that need in our last issue by telling our readers in words and pictures of 85 new and improved items adapted for 1932 selling. This issue—because our readers have reacted so enthusiastically to last month's new service—carries the news of 23 more products. And a simple sales plan was also proved out by DOMESTIC ENGINEERING. The next page shows what that plan and these new sales ideas did for one plumbing dealer. It's ready for each and every dealer to use.

How Our New "Best Prospects"

MINNEAPOLIS HONEYWELL HEAT CONTROLS

A. S. BLUNK HEATING COMPANY
HEATING—PLUMBING
809 EAST BROADWAY
LOUISVILLE, KENTUCKY

BROOKS SYSTEM OF UNDERGROUND IRRIGATION

June 29, 1932.

Domestic Engineering
1900 Prairie Ave.
Chicago, Ill.

Attention Mr. Gothard.

Gentlemen:

We selected the following ten items as salable to ten selected prospects as outlined in your June issue:

1. Lawn sprinkler system
2. Oil burner
3. New sink
4. New closet
5. Thermostat
6. New boiler
7. New Plbg. and Htg. installation
8. Gas burners
9. Air conditioner
10. Water heater

We have called on six of these prospects to date and have sold one of them, #3, a new sink, while others of them no doubt will buy soon. The plan of working on a small group of prospects at a time seems to us an excellent one, in fact we have always more or less followed such a plan, concentrating on prospects whose needs we know.

Very truly yours,

A. S. BLUNK HEATING COMPANY

Bm Blunk

BMB*B

Sales Plan Is Bringing Profits

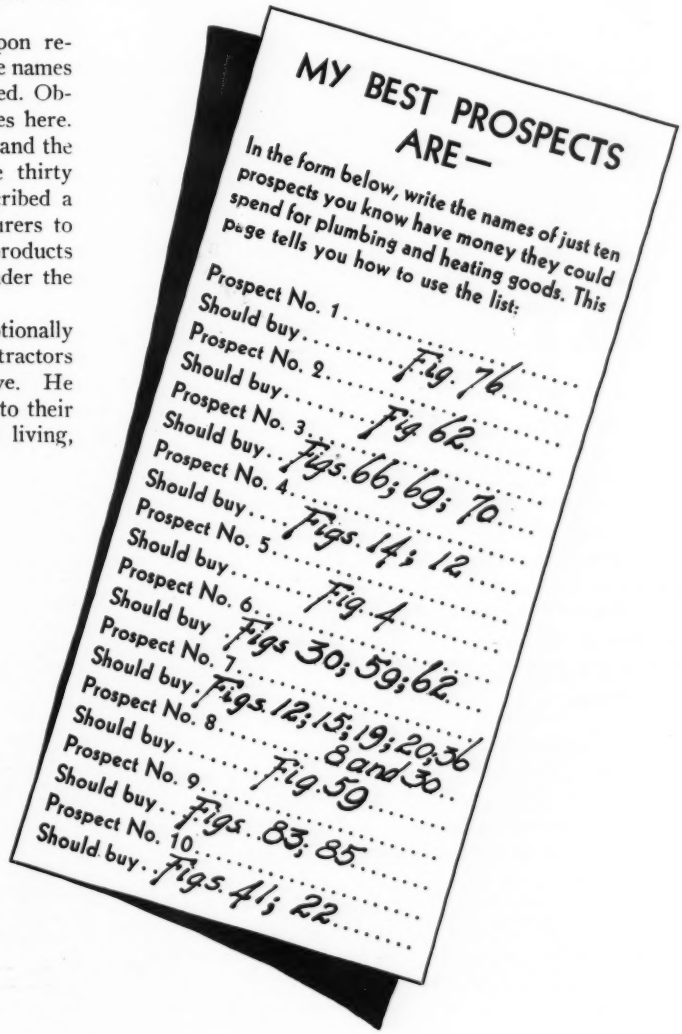
One dealer in Kentucky made one sale immediately and found nine other prospects are interested in buying a total of twenty-two items — The list, as he made it out, is reproduced in the form below

THE sales plan which was presented in the opening thirty-two pages of our June issue has brought results to many dealers. This article selects the experiences of one of our readers who has used it and who has written us as indicated by the letter at the left. We tell how this reader applied the ideas to a list of ten selected prospects in the particular locality which he serves. In the pages following this article, the general mechanics of the plan are again presented and an additional group of items are described which have been designed by manufacturers to be particularly salable at this time.

The letter at the left is self-explanatory. A second letter from this contractor went more into detail and contained the prospect list shown at the right under the heading "My Best Prospects Are——"

The entire plan centers around this list. Upon receiving the outline of the plan, Mr. Blunk listed the names of ten of his best prospects in the spaces provided. Obviously, there is no need of reproducing the names here. We are only interested in the working of the plan and the items selected. Then, upon going through the thirty pages of our June issue which showed and described a total of eighty-five items designed by manufacturers to meet the demands of the 1932 market, different products were selected and entered, by figure numbers, under the ten names already listed.

Mr. Blunk knows each of these prospects exceptionally well. He knows them just as all established contractors know selected groups in the territories they serve. He has been in their homes. He has a good idea as to their financial conditions. He knows their mode of living,



MY BEST PROSPECTS ARE—

In the form below, write the names of just ten prospects you know have money they could spend for plumbing and heating goods. This page tells you how to use the list:

Prospect No. 1.....
Should buy..... Fig. 76.....
Prospect No. 2.....
Should buy..... Fig 62.....
Prospect No. 3.....
Should buy.. Figs. 66; 69; 70....
Prospect No. 4.....
Should buy.... Figs. 14; 12.....
Prospect No. 5.....
Should buy..... Fig. 4.....
Prospect No. 6.....
Should buy . Figs 30; 59; 62...
Prospect No. 7.....
Should buy. Figs. 12; 15; 19; 20; 36
Prospect No. 8.....
Should buy..... 8 and 30..
Prospect No. 9.....
Should buy.. Figs. 83; 85.....
Prospect No. 10.....
Should buy. Figs. 41; 22.....

The letter at the left tells how one contractor dealer used the sales plan outlined in our June issue. The items selected by him for his ten best prospects are listed at the right in the form we provided.

"Prospect No. 4 could be listed first for a new closet and then an entire new bathroom. They need one very badly"

their habits and some of their ambitions. In short, he knows them so well that he is able to anticipate just what items they would be most interested in buying. In selecting these items, he has listed those which he calculated should excite immediate response.

In following this plan, he has wasted no time in approaching his prospects with products in which the prospects interest is only casual. The products were selected by turning through and reading the thirty-two page section in our June issue. He found an illustration and description of a lawn sprinkling system. This was numbered Fig. 76 (page 58, June, DOMESTIC ENGINEERING) and accordingly, he entered the notation, Fig. 76, under the name of Prospect No. 1, because he knew that of all the products shown in the thirty-two pages, Prospect No. 1 would be most interested in a lawn sprinkler system. His reasons in this regard are described more fully further on in this article.

The item listed for Prospect No. 2 is an oil burner. It was described in our June issue as Fig. 62, thus the notation in the second filled-in line of the list. As for Prospect No. 3, Fig. 66 refers to a kitchen sink. As indicated in the letter on page 36, Prospect No. 3 bought a sink immediately upon being approached over the telephone. Mr. Blunk knows that this same prospect should have a new kitchen range of either the electric (Fig. 69) or the gas (Fig. 70) type. For Prospect No. 4, Fig. 14 refers to a new closet combination and Fig. 12, to an entire new bathroom.

The item listed as Fig. 4 is a thermostat and Figs. 30, 59 and 62 are, respectively, a boiler, a conversion gas burner and an oil burner.

For Prospect No. 7 are listed Fig. 12, an entire new bathroom; Fig. 15, a dressing table and lavatory combination; Fig. 19, wall covering; Fig. 20, a line of shower, tub and lavatory fittings; Fig. 36, a heating boiler with a clothes drying compartment; Fig. 8, concealed radiation; and Fig. 30, a heating boiler.

Mr. Blunk thinks that Prospect No. 8 should buy the gas conversion burner which was shown as Fig. 59 in our June issue. Prospect No. 9 should buy a room cooler (Fig. 83) and a complete line of hospital fixtures (Fig. 85). As for Prospect No. 10, he should buy an automatic gas storage water heater (Fig. 41) and a new closet seat (Fig. 22).

As already indicated, succeeding letters from the A. S. Blunk Heating Co. gave more complete details as to their use of the "Best Prospect" sales plan. The contents of these are published in the following:

To go more into detail in regard to the prospects, No. 1 prospect, listed for a lawn sprinkler system, looks indeed like a very good bet. He is a retired farmer who owns a large tract of land where he has his residence and goes in for raising flowers and vegetables in a big way. It is his boast that he has a great number of different varieties of shrubs and flowers. With my present information, I cannot think of another thing that we might sell him. He has automatic heat, modern plumbing and lives out of doors too much to be particularly interested in an air conditioning unit. However, we are apt to

"He is a wealthy retired farmer who owns a large tract of land where he has his residence and goes in for raising flowers and vegetables in a big way"

find other things that we might sell him.

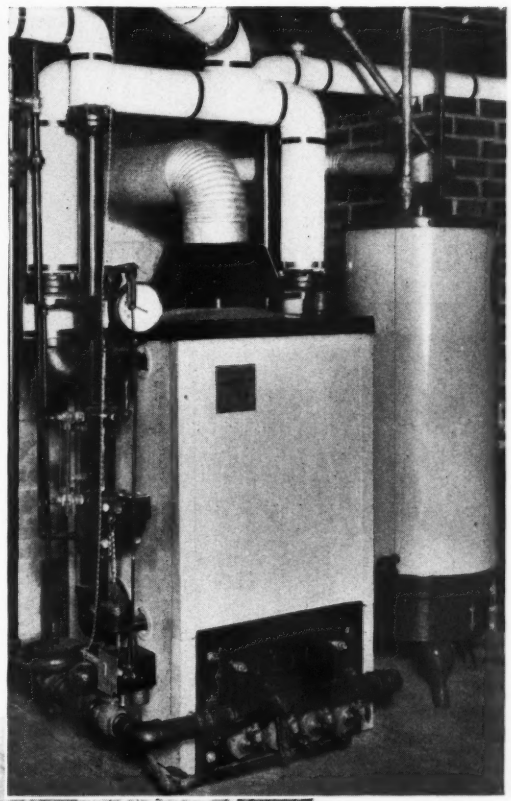
After listing him, we called on him but found him out of town for a short time. We talked to his head gardener, however.

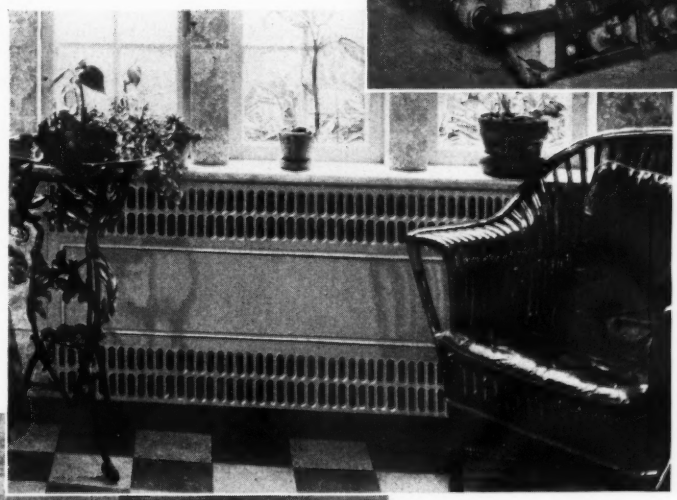
"Well, Joe," we said, "how do you like all this rain we have been having?" "Fine, fine, sir," he replied. "We sure been needing it. Kept us fellows busy trying to keep the place from drying up and blowing away this month." "You certainly did a good job of it. Everything looks mighty fresh and green, but what Mr. Hamilton ought to have out here is a sprinkler system. It would save you men a great amount of time and labor, and then you could water things at night, too, when it does them the most good. Did Mr. Hamilton ever consider anything like that?" "Yes, sir, he talked about it once, but not lately. He ought to now, though, for he's started raising vegetables, too, extra fine vegetables that he sells to his friends." "Do you think it would do any good, Joe, for me to see him when he gets back about a sprinkler system?" "Yes, I do, sir, for he's always spending money for something or other around this place, and while he's doing it he might as well be buying something worthwhile."

We are now anxiously awaiting Mr. Hamilton's return. Prospect No. 2, is listed for an oil-burner. Up to several years ago, he had accumulated enough on which to live at ease for the rest of his days, and so he built himself a comfortable little home and settled down to do so. We installed a hot water heating system for him about four years ago and figured that he was about due now for automatic heat. Sure enough he was! We submitted him a proposition on an oil-burner and an additional section for his boiler, and he said, "Boys come around to see me about the first of August, and I'm pretty sure we can do business together. You know I don't ever like to feel I'm being pushed into anything. Like to take my time and have the cash on hand and all that."

In the good old days we would have marked this tip "as good as sold." Even now we give it the benefit of the self-explanatory word "hot," a word that has been more or less in disuse lately so far as tips

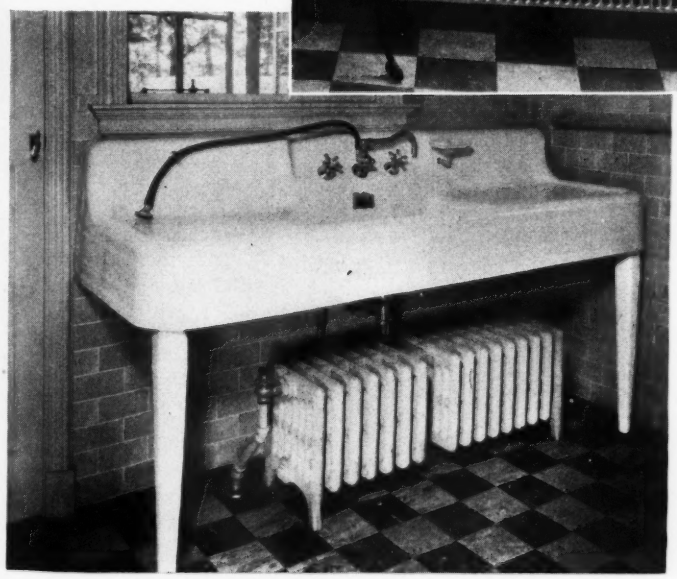
"Prospect No. 5 should be a good prospect for a thermostat because they burn gas manually controlled"

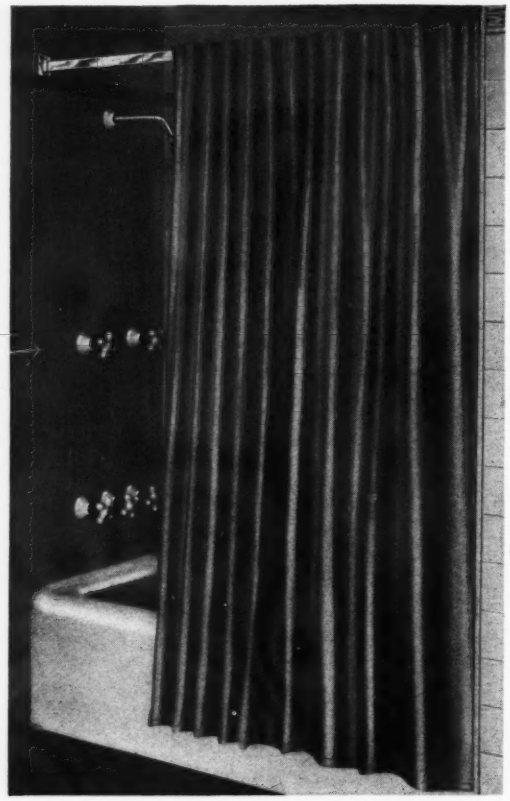




"She admitted needing a heater but said that even more than this, she wanted a n additional radiator"

"One of our men noted that the owner was very much handicapped at her work by the small sink she was using. We sold her a new sink immediately"





"Prospect No. 7 is listed for an entire new plumbing installation"

are concerned. There is not much chance of selling this prospect much more than an automatic heating system insomuch as he is quite well taken care of with his hot water heating installation, modern plumbing, radiator covers, etc.

Prospect No. 3, listed for a new sink, we sold immediately on the telephone. One of our workmen in making some minor repairs at this residence last fall noted that the owner was very much handicapped at her work by the small sink she was using. We had sent her literature on sinks from time to time, and when we called her last week she was just ripe to buy. We sold her with very little trouble a double drain, dual-strainer, acid-resisting sink, and a number of accessories.

She might have been sold any one of the sinks illustrated in your June issue, although she was limited as to price. At a later date, this prospect might be followed for a kitchen range.

Prospect No. 4 could be listed first for a new closet and then for an entire new bathroom, price permitting. They need one very badly. Their present closet is old and leaking, but they will not buy just now because of a recent bereavement in the family which has made their plans uncertain for the future.

Prospect No. 5, listed for a thermostat, has not been called on but should be a good prospect for a thermostat as they burn gas, manually controlled.

They have met financial reverses which would prohibit them from making very much of an outlay for new equipment. Prospect No. 6, listed for a new boiler, has not been called on. These people have an inefficient out-of-date boiler which sprang a leak last winter and was temporarily repaired. If their finances are in good shape, they should buy a replacement boiler before fall.

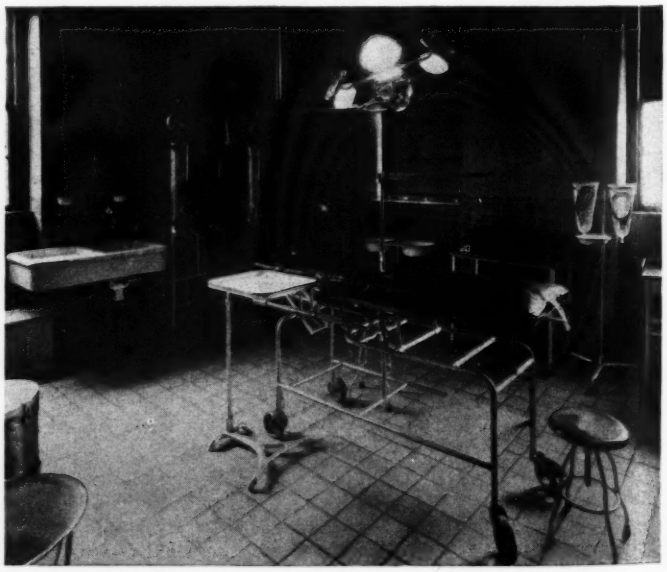
They might also be listed as prospects for an oil burner or a gas burner. Prospect No. 7, listed for a new plumbing and heating installation, is a professional man who recently purchased for a song an old home in the country near here. We had just heard of his purchase when listing him and on calling on him found that he plans to remodel it and make it his permanent residence. This will necessitate an entire new plumbing and heating installation, as the old equipment has been frozen, neglected, and parts of it stolen and carried away.

Prospect No. 8, listed for gas burners, is a large commercial building that has been having trouble with the burners in some of its oven equipment.

Prospect No. 9 listed for an air conditioning unit, has not been called on. They are well able to afford a portable air conditioning unit and could use one to advantage it would seem.

Prospect No. 10, listed for a water heater, will of necessity have to buy a heater soon since her old equipment is practically worn out.

To know a prospect's home from attic to cellar is the greatest help imaginable in selling him plumbing or heating equipment. Ten picked prospects are worth a barrel of the hit and miss variety.



"They are well able to afford a portable air conditioning unit and could use one to advantage, it would seem"

Every Dealer Can Use This Sales Plan

MY BEST PROSPECTS ARE—

In the form below, write the names of just ten prospects you know have money they could spend for plumbing and heating goods. This page tells you how to use the list:

Prospect No. 1.....
Should buy.....
Prospect No. 2.....
Should buy.....
Prospect No. 3.....
Should buy.....
Prospect No. 4.....
Should buy.....
Prospect No. 5.....
Should buy.....
Prospect No. 6.....
Should buy.....
Prospect No. 7.....
Should buy.....
Prospect No. 8.....
Should buy.....
Prospect No. 9.....
Should buy.....
Prospect No. 10.....
Should buy.....

This page outlines briefly the general features of the sales plan which first appeared in our June issue.

"TEN picked prospects are worth a barrel of the hit and miss variety." And—in addition—a few selected products designed for the present market and especially suited to the known needs of these ten picked prospects makes a combination which is certain to succeed. The basic idea and the idea on which much good business is being run today is that of thinking in terms of small numbers and of redoubling efforts where these are concerned.

There are people who have money—money to spare. Records show that this class is buying when it is demonstrated that the product offered fills a useful want, measured in terms of present, 1932, conditions. The products shown in the following seven pages and the eighty-five items which were described in our June issue indicate what manufacturers have done and are doing to provide products for this market.

The above form is again published here for your convenience. The suggestion is that:

1st—Write in the spaces provided the names of just ten prospects you know who have money they could spend for plumbing and heating goods.

2nd—Study the products in the following seven pages and in Pages 32-62 of our June issue.

3rd—When you come to an item which you know would appeal to one of the prospects you have listed above in the form, turn back to this page and jot down the figure number on the line below the name.

For instance, you may know that Mrs. Jones, who you have listed as, say, Prospect No. 3, is interested in a new shower curtain, a room cooling unit, and so on. As you come across these items in the following pages, note their figure numbers and place them under Mrs. Jones' name. Going through these pages will suggest sales possibilities in connection with the names you have listed.

4th—When you have done this with all ten of your prospects, add up the number of items listed under all of the names. You may find you have ten best prospects with twenty-three sales opportunities for the total, as the A. S. Blunk Heating Company found.

With this list of ten live prospects and the various products they should buy, then you can start promptly, your sales efforts. These efforts may be by means of the telephone, personal calls, direct mail, or any other means best suited to your individual case.

In any event, immediate sales efforts should center about your ten best prospects and their respective items.

The items on the following pages are offered to supplement those which were illustrated and described in our June issue. The total gives the reader a wide variety from which to choose in fitting selected products to the needs of his ten best prospects.

Plumbing Sales Opportunities for the Complete Home

THE 1932 market is a discriminating one. Its chief characteristic probably is its willingness to spend only for necessities and worth while items when the amount involved is of any importance. This situation has been recognized for some time with the natural result that manufactured items have been developed and redesigned to meet these exacting requirements. The process has been gradual of necessity because sound progress is not made in an instant. It has taken place over a considerable period of time. Accordingly, the individual reports and announcements of these new sales helps to the plumbing and heating dealer, through new and improved products, have been scattered.

The object of this section, as well as the thirty-two page section which was presented in our June issue, is to bring all of these developments together so that all of our readers may see at one time and at close range the great opportunities which have been created in their field. The number of recently marketed items designed especially for the new 1932 type of buyer, is impressive both to those in the industry and out. To dealers, certainly the number and variety should be inspirational through the knowledge that his present, redoubled sales efforts are effectively backed up with increasingly salable items.

Fig. 2 — The electric refrigerator shown below has cooling and moisture control. One line of models has a clock in the back panel

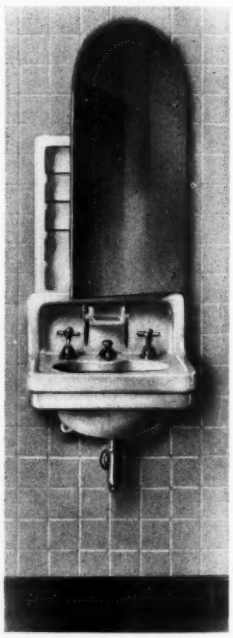


Fig. 3 — The combination lavatory and cabinet shown above is designed to be held in place with only four screws. The cabinet also is all porcelain

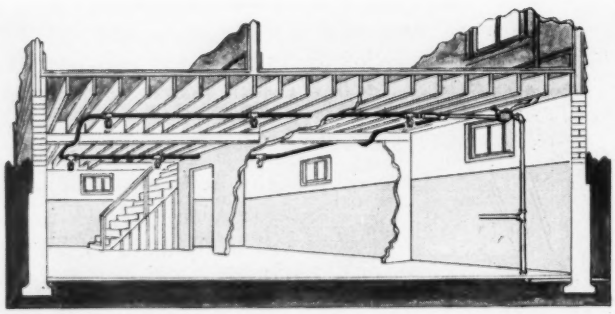


Fig. 1—Above is a sprinkler system just designed for inexpensive fire protection in the home

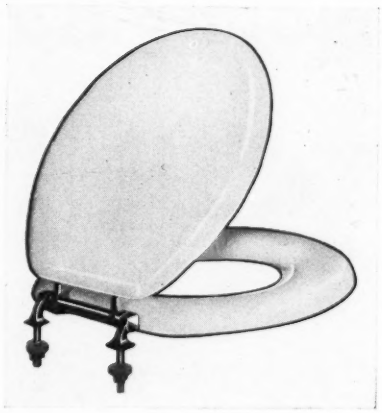
For your convenience in obtaining additional information, the names and addresses of the manufacturers of these new items are listed on page 48.

Eighty-five items were illustrated and described in June. An additional twenty-three items, each different, are presented here. Of course, these are not all. However, they are representative because there is at least one new and more salable product for each function in the American home.

As one good example of how new sales opportunities have been created through developments in manufactured products, refer to the system illustrated in Fig. 1. In the past, fire protection has been limited almost exclusively to large building, industrial structures and the like. Fire protection in the home has been slighted. Here is a system, just placed on the market, by means of which the home is afforded a large measure of protection from fire. The sprinkler heads and fire alarm are confined to the basement as records show that the majority of residential fires start there. It is designed to be installed quickly by the plumbing and heating contractor at a surprisingly low price.

With the increasing number of appliances which go to make up an efficient home, there is the possibility of the housewife finding herself burdened with the care of them unless they are completely automatic in their operation and control. The second illustration marked Fig. 2 shows an electric refrigerator embodying new principles of cooling and moisture control for up-to-date convenience and comfort.

Fig. 6—The toilet seat is most important in the impression made on any visitor



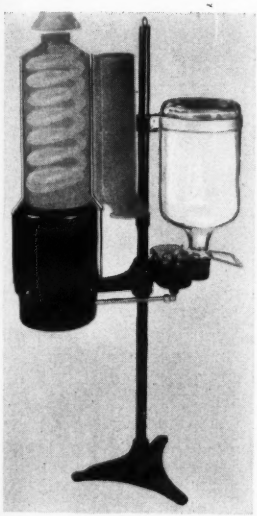
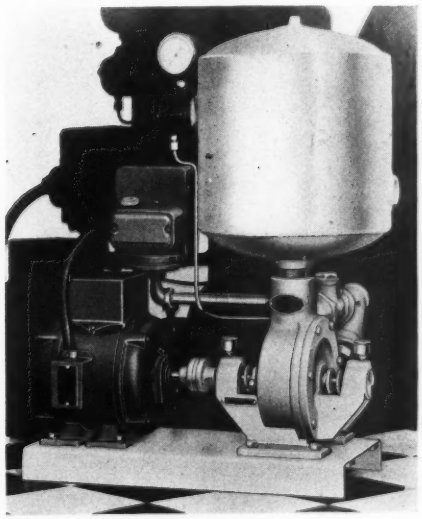


Fig. 5—The item shown below is designed to filter the gas supply to its respective equipment. Unobstructed burner orifices are essential for satisfactory operation

Fig. 4—Above is an oil burning water heater with wide sales possibilities

Some home owners object to making improvements because they have had past experiences when changes have entailed long torn-up periods during which they were required to wait for different trades to do their work. The unit shown in Fig. 3 is a combination which is installed all as one item. In addition to this, the cabinet is made entirely of porcelain, thus providing the home owner with an article easily maintained in its original condition.

The item shown in Fig. 4 is salable under two conditions; one, where gas and electricity are not available and two, where the home owner has a preference for oil burning appliances. Economy of



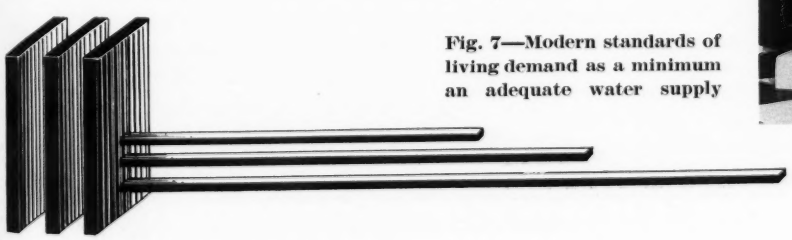


Fig. 7—Modern standards of living demand as a minimum an adequate water supply

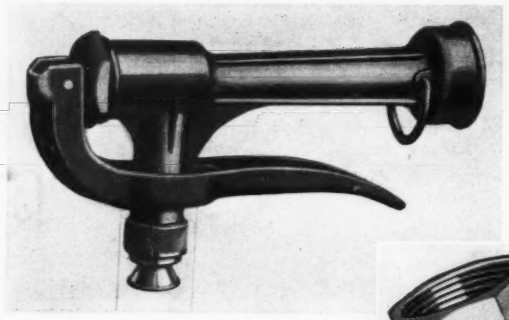
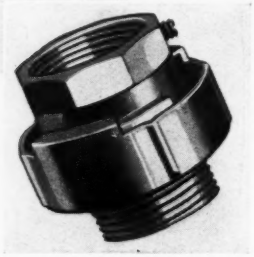


Fig. 8—The two devices at the left are designed to save both time and water for the home owner in keeping up the outside appearances of his home



operation is also a factor.

A completely automatic service from equipment is dependent upon an uninterrupted fuel supply. The item shown in Fig. 5 is a gas filter to provide clean and efficient fuel.

Visitors will judge a family's standards by such things as their bathroom and most outstanding in this, of course, is the closet seat. The one in Fig. 6 has been designed with this in mind.

Has one of your best prospects a summer home? If so, speak to him about a water supply system such as is shown in Fig. 7. This, of course, is only one type of prospect for this equipment.

With the return to the home, more and more attention is being given to the lawn and garden. Fig. 8 shows a device for coupling a hose to a sill cock, quickly and easily. The nozzle is designed to save water—an important household cost item in most localities—by means of an automatic shut-off.

Wherever the prospect has a fear that a shower means a wet floor outside of the compartment, refer him to the one shown in Fig. 9. Among other items, note the extended lip.

The shower fitting in Fig. 10 assures hot weather, as well as all year, comfort for anyone who has a bathtub—and who doesn't.

The automatic gas storage water heater shown in Fig. 11, is designed to add a finishing touch to any basement or appliance room in which it is installed.

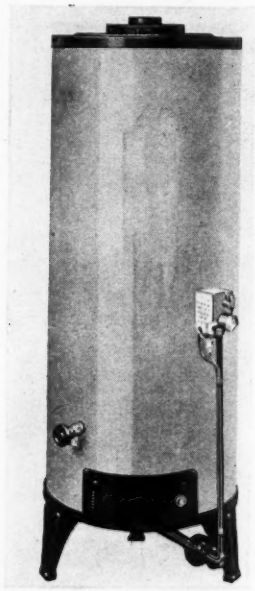
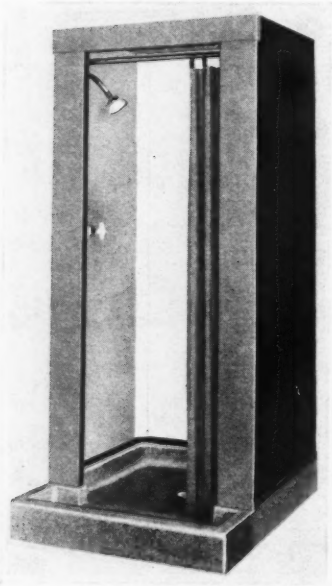


Fig. 11—The appearance of the water heater above is just one of the salable features which have been built into it

Fig. 9—Below is a shower stall, the most outstanding feature of which is the extended lip



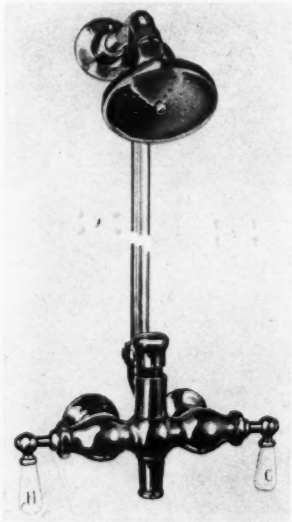
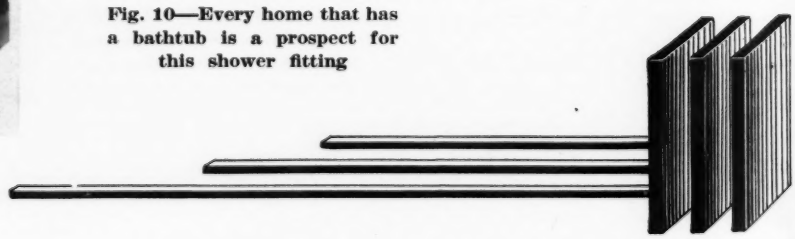
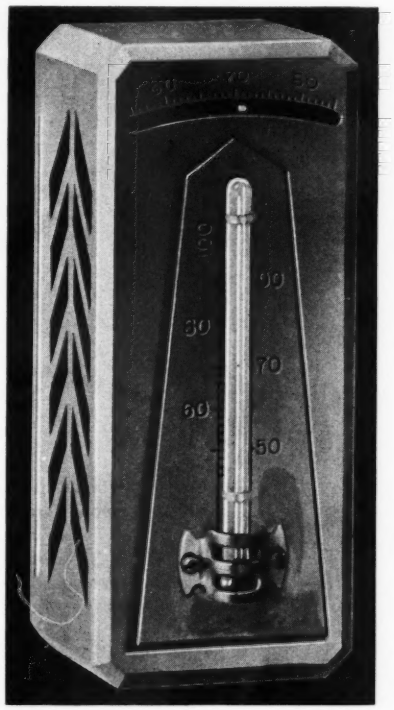


Fig. 10—Every home that has a bathtub is a prospect for this shower fitting



Heating Improvements Open Big Home Market



Any degree of summer or winter comfort desired by the owner can be produced through new equipment now available

IT WASN'T very long ago when only a limited amount of comfort could be offered the home owner in the winter and if he wanted to escape unbearable summer conditions, there was only one alternative; it was necessary to go to a different climate. Now, the heating dealer can give his selected prospects any indoor conditions that his requirements or desires may demand.

Not only is the service complete but it may be made automatic so that it requires no careful supervision on the part of the owner.

Recall the needs of the ten best prospects you have listed—individuals who have money and who are making conservative investments in themselves and their homes. There is no doubt but what you will find among them at least one interested in automatic temperature control. Equipment such as that shown in Fig. 12 will meet his needs. This particular device is a new low voltage mercury contact thermostat which has been designed to be sensitive to small room temperature changes. The standard range of the instrument is from 55 deg. Fahr. to 85 deg. Fahr. and its operation is caused by a temperature variation of one-half degree above or below the point set.

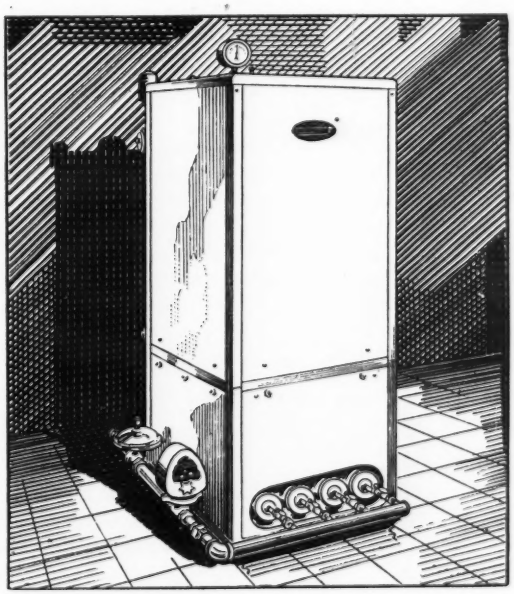
Fig. 12 — The thermostat shown at the top of this page has been designed for beauty. Available in colors to harmonize with room decorations

A two-degree variation may be made necessary by an adjustment.

It may be that another one of your ten best prospects should be enjoying automatic heat with gas. For this customer, there is a wide variety of gas fired heating boilers from which he may choose. Fig. 13 shows one which has been designed to respond quickly when the thermostat calls for heat and the gas is turned on.

Who of your ten best prospects are so behind the times that they think a part of a housewife's duty is to shovel coal six or eight months of every year. Introduce them to the benefits of coal firing with a stoker, not the least of which is a very considerable economy over manual methods. Fig. 14 illustrates a coal stoker. It burns the lower priced sizes

Fig. 13—The gas fired boiler below has been designed with the idea of taking advantage of the quick-heating action of gas



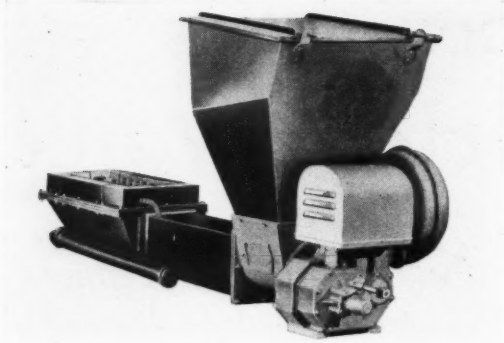


Fig. 14—At the left is a bituminous coal burning stoker which is designed to incorporate safety as well as economy features

Fig. 16 — The plug above is a pressure relief device which is designed to rupture by way of developing a positive action

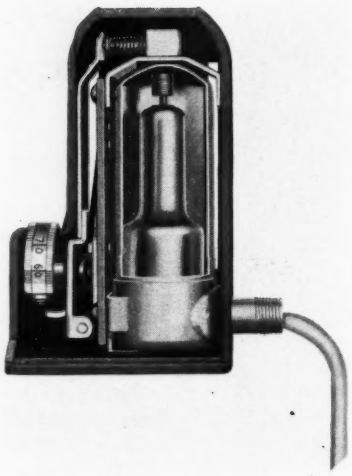


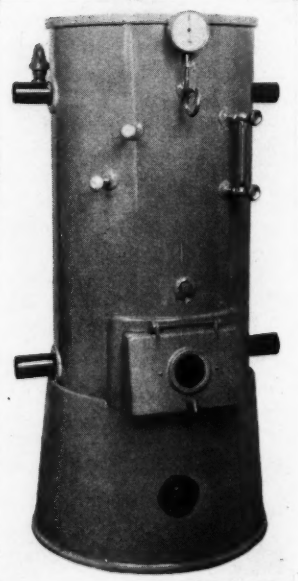
Fig. 15—The device at the left combines a regular air valve with an individual radiator control, actuated by the room temperature

of bituminous coal. Prospects with a fear for safety will be interested in its control features which include, in addition to the regular room temperature control, regulators which cut off its operation at predetermined steam or water temperature limits.

These same prospects, and others who want safety, also will be interested in the item marked Fig. 16. This is a plug which is designed to rupture when the pressure exerted on it is near the bursting point of the container it is installed to protect. When the plug operates to protect the boiler, it is necessary to install a new one, thus illustrating its positive action.

Check your list of prospects again. Which homes are equipped with steam heating and contain members in the family who like different temperatures for their respective rooms? These homes are prospects for the combination air valve and temperature control device shown in Fig. 15. The valve performs the function of the regular air valve and the thermostat is actuated by the temperature of the room in which it is installed.

The oil fired heating boiler shown in Fig. 17 should fit in with the scheme of any one of your ten best prospects who plans on making an additional room in the basement. One feature of this boiler is designed to assist in the transmission of heat through the walls of the tubes and to clean the tubes.



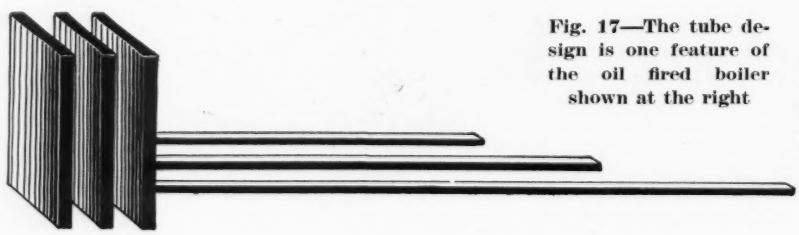


Fig. 17—The tube design is one feature of the oil fired boiler shown at the right

The Larger Building and Industry—Tap This Field

COMMERCIAL organizations at every hand are making, have made or contemplate changes which involve heating and plumbing equipment. Large accommodations are being vacated in favor of smaller spaces. Demands for new efficiency have called for new plumbing and heating arrangements. New concerns are springing up to capitalize on present demands. Many of these concerns present new opportunities for the plumbing and heating contractor who can anticipate and serve his prospects' needs most satisfactorily. To assist in this, many of the new products now available have been designed for simplicity, economy of operation and efficiency. Accordingly, the plumbing and heating contractor is in a position to suggest and advise to his prospect further refinements toward the end that the concern making the changes may improve its business.

The boiler return system shown in Fig. 18 has been developed to accomplish three functions; first, to return high and low pressure condensate; second, to supply make-up water to the boiler; and third, to maintain a uniform water level in the boiler.

Further sales opportunities are presented by the dishwasher shown in Fig. 19. Every restaurant or drug store with a lunch counter, if not already equipped with one is a prospect, for this item which washes both glass and dish ware.

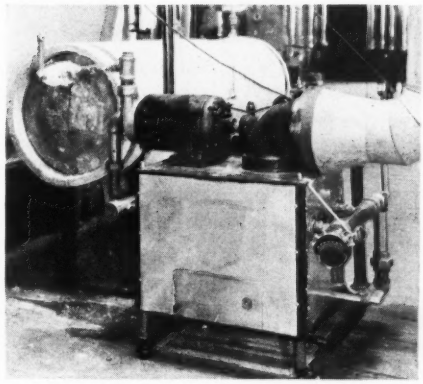


Fig. 20—An electric pump assures the circulation of this large volume water heater

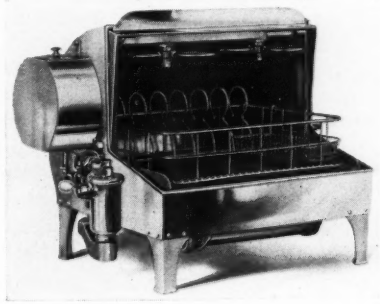


Fig. 19—Enter this figure number under the name of your prospect who can use a dishwasher

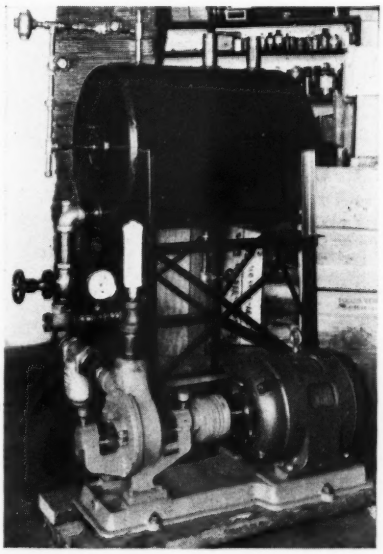
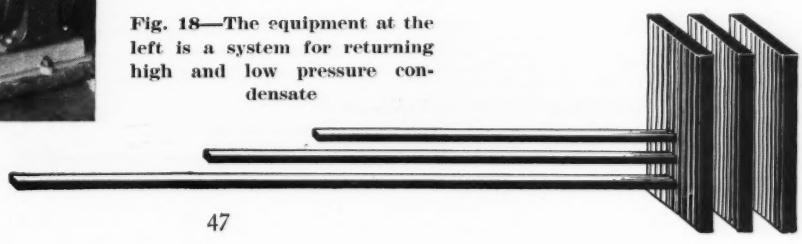


Fig. 18—The equipment at the left is a system for returning high and low pressure condensate

Listed among the prospects for the item shown in Fig. 20 are clubhouses, small hotels, restaurants, office buildings, apartments and stores. This equipment has been designed to meet the demands of the occupants of these types of buildings for large volumes of heated water. In the development of this heater the fact that many existing storage tanks are located with low head room was taken into consideration and the heater includes an electric pump for circulating the water from the storage tank through the heating sections and back to the tank. The matter of venting the heater also has been taken care of in that a fan connected to the pump motor gives an



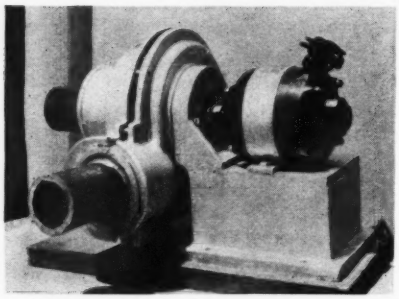


Fig. 21—This exhaust fan is lined with an acid resisting ceramic material to make it suitable for handling corrosive fumes

induced draft. This is also designed to eliminate condensation. The sides and bottom of the heater contain removable panels to facilitate cleaning and servicing.

Where your industrial or large building prospect carries on processes which give off acid and corrosive fumes, the equipment shown in Fig. 21 should excite interest. It carries low pressures; is lined with a ceramic material.

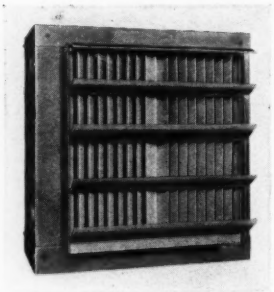
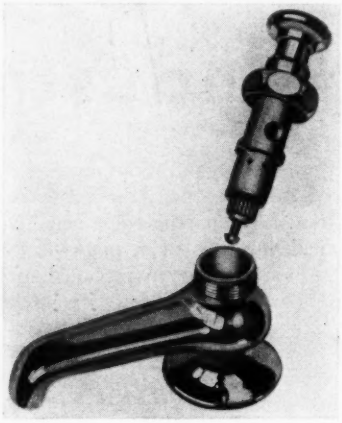


Fig. 22—Here is a unit which may be used for either heating or cooling and is built to withstand a pressure of 250 lb. per sq. in.

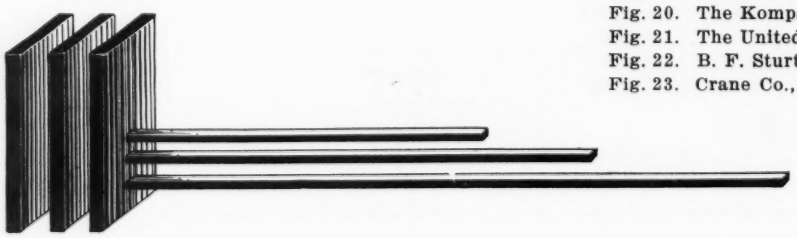
If, among your list of ten best prospects, you have a store, restaurant, shop, office, industrial plant or other space where comfort is considered, you have a prospect for the heating and cooling unit shown in Fig. 22. It is suspended from the ceiling. As for exterior condensate, this is eliminated by the design which maintains the outside of the cabinet at a temperature close to the room temperature. The faucet, Fig. 23, has been designed for installation in public and semi-public buildings. It is both slow closing and self-closing. All parts subjected to wear, including the valve seat are renewable without disturbing the body of the valve.

Fig. 23—One feature of this self-closing faucet is that it has been designed to be vandal-proof



Key to Manufacturers Whose Products Are Shown in Preceding Pages

Fig. 1. Grinnell Co., Providence, R. I.
Fig. 2. Uniflow Manufacturing Co., Erie, Pa.
Fig. 3. Allied Company, Woodbridge, N. J.
Fig. 4. Automatic Burner Corp., Chicago, Ill.
Fig. 5. The Hotstream Heater Co., Cleveland, Ohio.
Fig. 6. Charles A. Miller, Sturgis, Mich.
Fig. 7. Westco Pump Corporation, Davenport, Iowa.
Fig. 8. The Cleveland Brass Mfg. Co., Cleveland, Ohio.
Fig. 9. Fiat Metal Manufacturing Co., Chicago, Ill.
Fig. 10. Mueller Co., Decatur, Ill.
Fig. 11. American Gas Products Corp., New York, N. Y.
Fig. 12. The Mercoid Corporation, Chicago, Ill.
Fig. 13. J. H. McCormick & Co., Williamsport, Pa.
Fig. 14. Butler Manufacturing Co., Kansas City, Mo.
Fig. 15. The Dole Valve Co., Chicago, Ill.
Fig. 16. The Triplex Heating Specialty Co., Inc., Peru, Ind.
Fig. 17. Orr & Sembower, Inc., Reading, Pa.
Fig. 18. Fred H. Schaub Engineering Co., Chicago, Ill.
Fig. 19. Smith & Wesson, Inc., Springfield, Mass.
Fig. 20. The Kompak Co., New Brunswick, N. J.
Fig. 21. The United States Stoneware Co., New York, N. Y.
Fig. 22. B. F. Sturtevant Co., Hyde Park, Boston, Mass.
Fig. 23. Crane Co., Chicago, Ill.



What You Should Know About Air Conditioning

By WALTER L. FLEISHER

THE day has arrived when air conditioning is the subject uppermost in everyone's mind, when the subject heating and ventilating, in any of its phases is mentioned. It is not a question, today, as to whether you, as heating contractors, should consider the advisability of entering into air conditioning, but rather a question as to how quickly you can adapt yourself to the new conceptions of air conditioning in order to stay in the heating business, because inevitably with the development of air conditioning and its simplification and its consequent cheapening, every heating job, in my mind, will eventually be an air conditioning job.

In our whole history of development, there has been really nothing in the line of mechanical evolution which has proceeded much more quickly than the evolution from straight heating to so-called air conditioning. There is not a manufacturer of any size heating devices today who is not devoting a considerable amount of his time and money to the development of air conditioning devices, or the changing over of his present products for use in air conditioning. Our largest manufacturer of heating devices informed me that they were spending on the development of air conditioning devices more money at the present time, than on all the rest of their development put together.

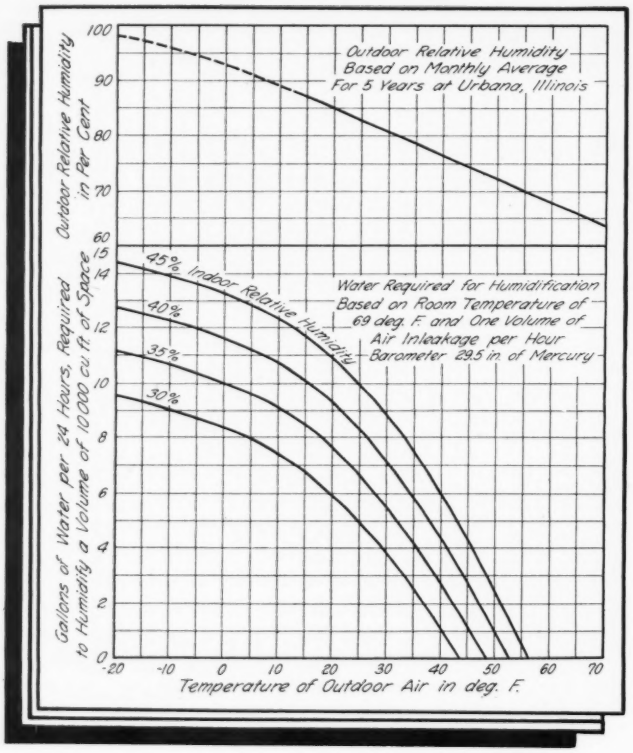
WHAT IS AIR CONDITIONING?

I feel that all of you would more readily appreciate this subject if I defined air conditioning as I see it. Air conditioning is the simultaneous control of temperature, humidity and air movement. Now, all three of these divisions of air conditioning are inherent in every heating system, but most of the time in our present heating systems they have no relationship to each other. In order to make air conditioning effective, they must have some relationship to each other, and when I say the simultaneous control, I do not necessarily mean automatic control, except as it is inherent in the apparatus which is installed to produce the conditions. A radiator of any kind may produce the required temperature. If moisture is not introduced at the same time as heat is transmitted or radiated, this very heating may lower the relative humidity. At the same time the temperature of either the radiator or the room itself or the air in the room which has been heated by the radiator may create an air movement more rapid than the movement before the radiator was heated. The resulting conditioning may possibly be more unsatisfactory than a properly controlled temperature either of the room or the radiator or both. The proper amount of moisture artificially introduced in the winter time, to maintain a comfortable relative humidity and a regulated air movement which will distribute the heated and moistened air across the body may create a feeling of comfort which is the only criterion of proper heating.

We have all of us, been familiar with crude attempts at air conditioning since our very first introduction to heating. Pans of water on stoves or radiators or the sprinkling of water on the floor, or methods similarly crude and only slightly effective have been in general use to overcome the dryness and stuffiness so familiar in the winter time. The temperature and moisture of the skin is the criterion of our feeling of comfort, and when through artificial means the normal condition of our skin is upset and the body has to do work in order to compensate, we have a feeling of discomfort which can be avoided and compensated for by means of adequate heating systems and devices.

While I was chairman of the Standardization Com-

This article was presented at the annual convention of the Heating and Piping Contractors National Association, held at Detroit in June, and is reprinted here by permission of that association. The accompaning charts were not used by Mr. Fleisher. They have been added to supplement his article. They were developed by Professor A. P. Kratz in his University of Illinois bulletin entitled "Humidification for Residences"



mittee of this Association, I devoted a part of my time to teach the meaning of a British Thermal Unit. A British Thermal Unit after all, is nothing but a heat measuring stick. It is no more real than an inch or a foot or a mile. It is simply something by which we compare other things of a similar nature. It is the amount of heat that would be required to raise the temperature of one pound of water one degree. The same amount of heat would raise a cubic foot of air 55 deg. Fahr. if the air were perfectly dry.

Air conditioning, from a theoretical standpoint, is not simple. Changes take place in a mixture of air and moisture, the final results of which have been worked out on theoretical formulae. Notwithstanding the complication of the theory of air conditioning, the heating contractor must have rule-of-thumb measuring sticks.

The heating contractor who is gradually going to be forced into air conditioning is also going to be confronted in the next few years, with the slogan of comfort conditions and effective temperatures, and is going to have to use these terms, or at least, understand them, in order to function in the air conditioning field. Actually comfort zone and effective temperatures are names to represent comfortable conditions involving more than the ordinary thermometer reading with which the contractor is accustomed to deal. Through experiments or tests or similar methods, the heating and ventilating engineers have determined that there are quite a number of temperatures that can be read on a thermometer which give equal comfort when combined with different amounts of relative humidity. Thus in the winter time a group of people who experienced this found that they felt as comfortable in rooms of 65 deg. Fahr. or 66 deg. Fahr. when the relative humidity was around 40 per cent or 45 per cent, as they felt when the thermometer was 70 deg. Fahr. and the relative humidity considerably lower. Also, in the summer time, they felt as comfortable with a high temperature and a low relative humidity as they did when the temperature was lower and the relative humidity higher. These tests were worked into tables and equal conditions of comfort were called equal effective temperatures, and the range under which a large percentage of the whole group felt comfortable was called a zone of comfort. These conditions were also affected by the velocity of the conditioned air over the bodies of the people.

For winter heating the old dry bulb temperatures of 68 deg. Fahr. to 70 deg. Fahr. with a fair amount of relative humidity are still comfortable conditions. With the addition of some moisture lower dry bulb temperatures are quite comfortable.

The American Society of Heating and Ventilating Engineers have published charts showing the range of comfort in zones. It would be well for the heating contractor having to do work in air conditioning to become familiar with them.

It would also be well for the heating contractor to know something about moisture in air. Probably most people know that air is a mechanical mixture of oxygen and nitrogen and that for ordinary temperatures and under ordinary atmospheric pressure a cubic foot of air weighs about 1/3 of a pound. The moisture which is in the air, for there is always moisture in the air, is not the same thing as water, any more than steam is the same thing as water, although it is developed from the same source. In fact, the moisture in the air is much more like steam than it is like water, and is usually considered a perfect gas.

Now, the difficult thing to understand is that two gases, that is, air and steam, can occupy the same space. In other words, increasing the amount of moisture in the air is not in any way dependent upon the space occupied by the air, but only by its temperature. Air can hold moisture in the form of steam or vapor in definite quantities, dependent as I have said, entirely on the temperature of the air. But the pressure exerted by that particular cubic foot of air is the pressure exerted by the weight of the air plus the weight of the vapor.

THE MEANING OF RELATIVE HUMIDITY

When air at 70 deg. Fahr. holds all of the vapor it can hold, it contains 8 grains of moisture by weight. If this air is cooled say to 50 deg. Fahr., 4 grains of moisture would drop out and then, if the air is heated again to 70 deg. Fahr. and no moisture is allowed to get in and the cubic foot of air only had 4 grains of moisture at 70 deg. Fahr., it would have half the moisture that it could hold if saturated, and would have what is known as 50 per cent relative humidity. In other words the relative humidity is the proportion of moisture as a vapor in air,

compared to the maximum amount of moisture it can hold.

In the winter time air leaks into our houses from out of doors at temperatures of approximately 30 deg. Fahr., at which temperature the maximum amount of moisture that a cubic foot of air can hold is less than 2 grains. As it is seldom saturated out of doors, the probabilities are that it only has one grain per cubic foot in it when it enters our houses. When air with one grain of moisture per cubic foot is heated to 70 deg. Fahr., the relative humidity of this cubic foot of air is 15 per cent.

According to the investigators of the *American Society of Heating and Ventilating Engineers,* air with 15 per cent relative humidity would have a dry bulb temperature of about 80 deg. Fahr. to feel as comfortable as air at 70 deg. Fahr. and a reasonable relative humidity. Also, it is well to bear in mind that all materials that dry up and warp normally have a definite amount of moisture in them, which is extracted by the air when the air is relatively dry, and it is to take care of this undesirable result that moisture is introduced into the house or office as much as it is to remove the discomfort of the people. At least, the people can go out of the house or drink a great deal of water or something of that sort, but the furniture, hangings and things of that kind are helpless in a dry atmosphere.

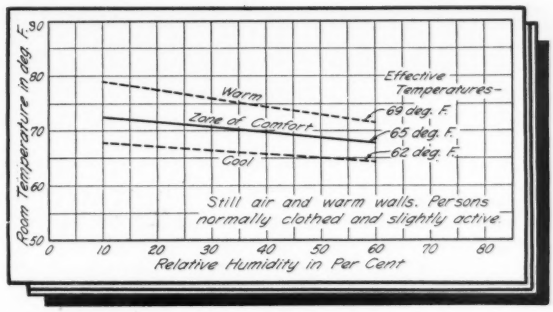
PROGRESS OF COOLING

It is the overcoming of these conditions and the relief which is felt when the proper amount of moisture and the lowered temperature is produced which has given rise to the introduction of air conditioning methods in the places in which people live or assemble. In this discussion, I am concentrating on the relief of winter conditions. The heating contractor in his work and in his efforts to overcome the hazards of climatic changes has been interested primarily in the relief of winter conditions.

The progress of cooling for comfort has been of later growth. Up to the time that the large moving picture theatres installed cooling, cooling for comfort was more of an idea than an actuality. Since then the cooling game, catching the imagination of the people, has gone ahead very rapidly.

Returning to the theory, practice and necessity of moisture addition to the air, if we are considering a house approximately 30 ft. by 30 ft., 20 ft. high, we have 18,000 cu. ft. of space to be conditioned. If we consider that a maximum of 2 air changes an hour would occur in this house during the winter time, 36,000 cu. ft. would come in from out of doors, which during severe weather would only contain one grain of moisture per cubic foot. To be comfortable, 2½ grains of moisture would have to be added to each one of these 36,000 cubic feet of air, or 90,000 grains of moisture in an hour.

As there are 7,000 grains of moisture in a pound, about 13 pounds of water would have to be evaporated per hour to make the house comfortable, or something over a gallon and a half of water. This is the problem with which all of you are confronted, but you are not only confronted with the problem of getting this water into the air in the house, but of distributing it as well.



You remember that I said in the earlier part of this address that at 70 deg. air could only hold 8 grains of moisture per cubic foot. Beyond that any moisture added falls out and condenses and becomes a nuisance. Also, when air is nearly saturated, the tendency for moisture to deposit on the windows is very great, and therefore the delivery of all of the moisture for a house in one location is likely to result in either over-humidifying at one point, and under-humidifying at others, or the depositing of free moisture near the point of introduction. It was this question of distribution which helped to further the development of so-called air conditioning warm air furnace systems. Air outlets were distributed in many parts of the house and it was simple to add fans to the system to accelerate the movement of the moisture-laden air to the proper parts of the house. These systems also lent themselves very well to gas-fired operation and to the addition of some sort of cooling medium to give them an all year round purpose.

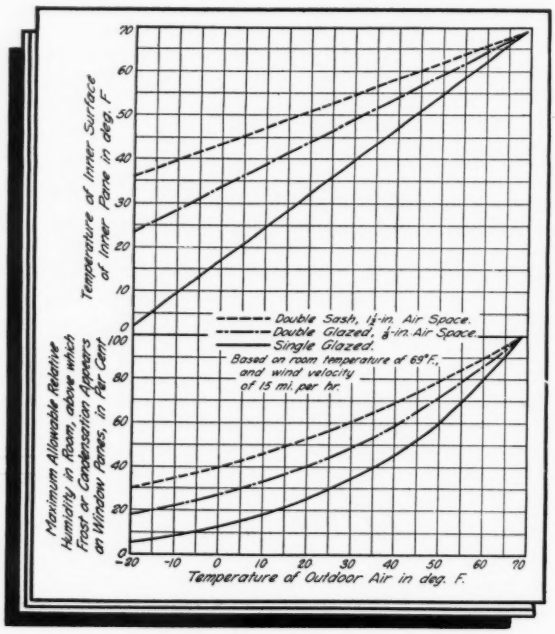
A question that will come up very often in the sale of air conditioning devices is as to whether it costs more to heat with higher humidity and lower dry bulb than with higher dry bulb and lower humidity, and to answer this the heating contractor will have to be familiar with the proper information.

To evaporate 2½ grains of moisture per cubic foot per hour requires, for the example I have given of a 36,000 cu. ft. of air per hour house, the evaporation of 12 pounds of water per hour, which is the equivalent of 12,000 Btu. which, at 240 Btu. to a square foot of radiation is the equivalent of 50 square feet additional radiation. Now, if this house can be maintained comfortable at 67 deg. Fahr. instead of 72 deg. Fahr. we have a differential in temperature between indoors and outdoors, say, for New York, of 57 degrees instead of 62 degrees or 92 per cent of the radiation for heating that ordinarily would be required. Assuming a house of this kind would require ordinarily 400 sq. ft. of radiation, the decrease in temperature required would save about 20 sq. ft. of radiation and the humidi-

fication would require, under maximum conditions, 50 sq. ft. additional. Therefore, properly conditioning the house would add between 7 or 8 per cent to the total load under maximum conditions. But as the feeling of comfort is a function of the temperature and relative humidity, this in itself shows to a certain extent, that people require this additional heating, (by heating I mean humidification) in order to secure comfort, and that they can secure it at approximately a 7½ per cent increase in their load factor.

In most cases it will not be essential to explain this addition to the ultimate owner. The heating contractor can say that with the lower temperature required for comfort with proper conditioning, the total load on the house is very nearly the same.

Of course, if the infiltration, which is only part of the heating that has to be compensated for by means of humidification, be cut down to one air change an hour instead of two, which is cited in this example, this statement that the humidification requires no additional load on the boiler is practically exactly true.


Temperature of Inner Surface of Inner Pane in deg. F
Maximum Allowable Relative Humidity in Room, above which Frost or Condensation Appears on Window Panes, in Per Cent
Double Sash, 1¼-in. Air Space.
Double Glazed, ¼-in. Air Space.
Single Glazed.
Based on room temperature of 69°F., and wind velocity of 15 mi. per hr.
Temperature of Outdoor Air in deg. F.

So far, I have talked to you entirely about humidification, except for the merest mention of cooling. I have done this purposely because cooling is a new subject, a new engineering problem.

It is obvious that if the heating contractor is to hold his place in the game, he must be the person to furnish and install this combined apparatus, and then he not only has to understand the purposes of this device for winter heating and humidification, but also what I might call the reverse cycle of summer cooling and de-humidification which must be taken into consideration that are not important or which are helpful during the heating season. For instance, the radiant effect of the sun through the glass or on the walls which are acted on by the sun play a tremendously important part in cooling, whereas in heating they are of assistance in maintaining the conditions desired. The same thing is true of the body heat given off by the occupants of an enclosure or the electric lights, or the various electrical devices and apparatus which transform their function into sensible heat or create additional load on the cooling system, and to diminish the load on the heating system.

SOME FACTORS IN COOLING

The removal of moisture from the air, which is so essential in producing comfort conditions in the summer time and which inversely corresponds to the evaporation of moisture for humidification in the winter, is a load factor which decreases the amount of cooling that can be done with any refrigerating system. The fact that cold air has a greater density than warm air prevents the cooling surfaces from being affected by gravity flue action, and, therefore, reduces the transmission from surfaces which during the heating season, takes place to increase the capacity of the surface or units.

FIGURING THE COOLING LOAD

These are some of the simpler things in cooling and de-humidification, which it is well for the heating contractor to be familiar with, in order to discuss with intelligence, the cooling requirements with which he would be confronted.

Actually, as far as calculations go, straight cooling without the consideration of de-humidification or moisture elimination is not very different from the calculations for heating. Wall construction or windows transmit heat in the same relationship in the summer time that they do in the winter, except that the difference to be maintained between indoors and outdoors is less in the summer time than it usually is in the winter. In other words, assuming a heating problem from 0 deg. Fahr. to 70 deg. Fahr. with a difference of 70 degrees between indoors and outdoors would in most cases in the summer time reduce to 20 degrees as a maximum, that is between 95 deg. Fahr. and 75 deg. Fahr. However, as stated before, the solar radiation is a very important factor in the summer time, and creates conditions almost as severe as the larger differential of winter heating. Then, too, the surface from which heating or cooling develop has a much wider difference between the temperature of the heating medium and the temperature of the room than is possible in the summer time. In other words, with one pound steam pressure the temperature of steam is about 215 deg. Fahr. and the room to be maintained at 70 deg. Fahr. gives a differential of 145 degrees.

In the summer time it is not feasible to circulate a medium much lower than 40 deg. Fahr., and therefore, the differential between 75 and 40 is only 35, as against the 145 differential of the winter. This requires more surface or a higher air circulation over the surface in order to accomplish the desired results in the summer time.

The heating contractor is also confronted with the fact that cooling, artificially accomplished, usually re-

quires an electrically driven compressor, and that the efficiency is really a function of the electric motor. It can be stated, as a guide to the heating contractor, that if he can figure his heat losses or his heat gains in the summer time, he can approximate the number of tons of refrigeration that it would require to cool, by dividing his heat gain per hour in Btu.'s by 12,000.

I mention this because one of the first considerations of his prospective customer will be, how much refrigeration would be required to cool an isolated room, or a house or any section of the house. If the heating contractor will then figure that about 1½ horsepower is required to develop a ton of refrigeration electrically, and that it takes anywhere from 120 to 300 gallons of water an hour to condense the refrigerant when developing the ton of refrigeration, he will be in a position to answer the inquiries of his prospective customers.

It is always well in purchasing a refrigerating machine for cooling purposes, to have the manufacturer of the apparatus guarantee its output in Btu.'s per hour, rather than in tons of refrigeration. It is also well to bear in mind in cooling that the elimination of a pound of water per hour requires the extraction of 1,000 Btu. or 1½ tons per hour, and that the extraction of the moisture from the air may give a feeling of comfort but will do no cooling except that cooling which must occur in reducing the temperature of the air to the point where the moisture falls out automatically lowering the temperature.

I have mentioned only electrical refrigeration; that is, refrigeration obtained by means of an electric motor driving a compressor. Ice can be used to obtain the same results, and in many instances, is an adequate and economical method of producing these results.

Here again is a problem for the heating contractor; that is, the proper methods of handling this product and the quantity of ice which must be melted in order to obtain proper results. Adequate cooling can sometimes be done by means of city water or lake water and sometimes by the use of wells. The thing that must be borne in mind, however, is that unless the water is sufficiently cold, the final results, particularly in a spray type cooling device, may be worse than the conditions which one is desirous of overcoming.

All of these ideas for both humidifying and cooling open a field in completed buildings and residences which should more than take up the slack of decreased building operations, because any house or any building is a potential customer for the heating contractor who is familiar with the fundamentals of this subject, and can utilize his knowledge to persuade his prospective customers.

I have not mentioned the phase of this subject, which probably is of paramount interest to the heating contractor at the present time and that phase is, "What does an installation cost, and how much does it cost to operate?" I have not gone into this subject for various reasons. In the first place, costs are not yet standardized and every proposition is a separate and distinct proposition of its own, and the costs may be anything from a few dollars to several thousand. With a proper knowledge of the right-sized equipment and of what the equipment should perform, apparatus may be selected and installed which will not add materially to the ordinary cost of indirect heating.

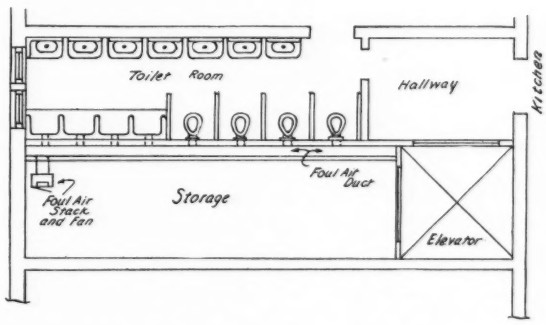
What Can Happen from Defective Toilet Room Ventilation

WITH modern equipment, properly installed and intelligently operated, public toilet rooms, as we are all well aware, can be provided with atmosphere that is practically free from offensive odor.

But these results cannot be attained just by installing first-class equipment and setting it going. Coupled with this must be constant supervision and attention. Lacking this, the most effective system of such ventilation can break down, and does break down.

We recently ran onto a very remarkable instance of just this sort of situation.

This accompanying plan shows a public toilet room located in the basement of a hotel building. On the



same level was a kitchen, which was separated from the toilet room by a hallway. Back of the toilet room was a storage space into which there was no entrance except by elevator, and this situation became the cause or basis of a very peculiar condition.

The line of water closets and urinals was local vented into a vent chamber in back of the toilet room partition. This vent chamber connected into a vertical foul air duct in which the exhaust fan was located.

The fan got out of repair and was allowed to so continue for quite a length of time. Moreover, a door into the duct was left open.

Similar negligence allowed the kitchen ventilation to fail.

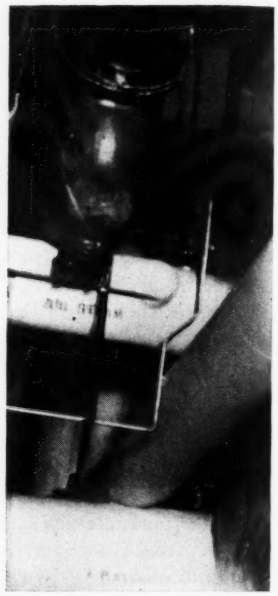
As the elevator rose and dropped, it acted exactly as a piston would. When it rose it created sufficient suction to pull into the storage space through the open door to the fan box, the foul air from the vent chamber and the toilet room, and from here it found its way into the elevator shaft. At every passage of the elevator up and down, this foul air was sucked in and forced out, distributing itself wherever it would, to the various floors of the building.

This was not the whole story, however, for kitchen odors were distributed in a similar manner. It seemed that the odor of corned beef and cabbage was stronger and more penetrating than the toilet room odors, and the latter were thereby covered up to a considerable extent. Nevertheless, the combination of the two sets of odors was present and objectionable.

When the management woke up to the situation and the ventilation arrangements were set in order, the condition was overcome.

How to Plan a Big Plumbing Job

By JAMES A. COTTER



This is the second of a series of three articles

THE water supply for the huge New York Hospital and Cornell Medical College Association project entailed many interesting studies. Because of the nature of the buildings water must be had at all times. Therefore, the water systems were designed with a sufficient reserve storage capacity and a flexibility through by-passes to adequately carry over the period of a break-down within the building groups or in the mains of the city supply. It is hardly probable that an interruption in the city supply would be of greater than a few hours' duration.

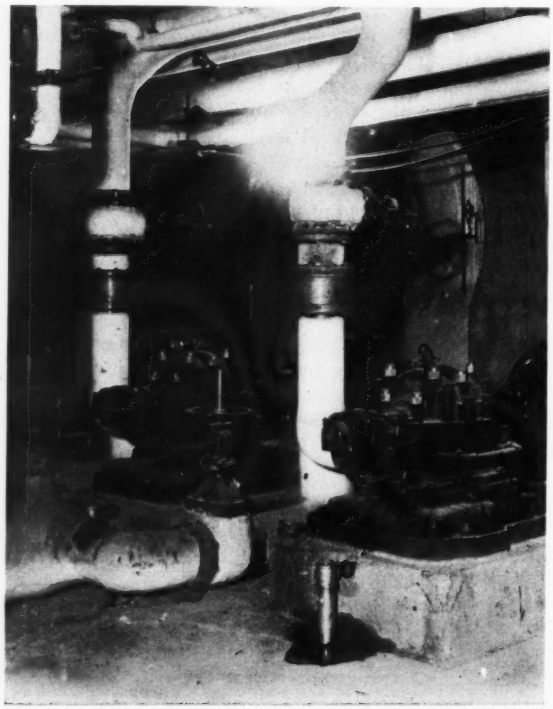


Fig. 1—This view shows the low zone domestic cold water pumps in the sub-sub-basement of the main hospital building

With this assumption, and using a factor of safety, the reserve storage capacities of the tanks were determined.

The consumption of water was established at two gallons per cubic foot of volume of building per month. With this factor, the sizes of the storage tanks were determined. All the cold water storage tanks are of steel plate and riveted, and have dividing walls so that each have three sections. This will facilitate painting and making repairs when such are necessary. Each section has its own supply, waste, overflow connection and supply control. Tank compartments are also supplied with floats actuating remote electrical level indicators with high and low alarm devices. The discharge outlets of all storage tanks are provided with strainers. Steel plate drip pans are provided.

THE SCHEME OF THE STORAGE TANKS

The scheme of the storage tanks for both groups of buildings called for a surge tank in the sub-basement and a house tank at the top of the building. The height of the main hospital building made it necessary to use an intermediate tank about half way up the building because without it there would be an excessive working water pressure on the piping and faucets at the lower floors. The surge tanks are filled by gravity from the city main and the pumps take the water from the surge tanks and deliver it to the house tanks. The cold water pumps supplying the house tanks are of the direct-connected motor-driven centrifugal type. They are automatically controlled by float switches in the tank compartments. Motors which are in the same unit cut out at the same high water level but cut in at different low levels. The sequence of cutting in the motors in each unit may be varied. All water and vacuum pumps are fitted

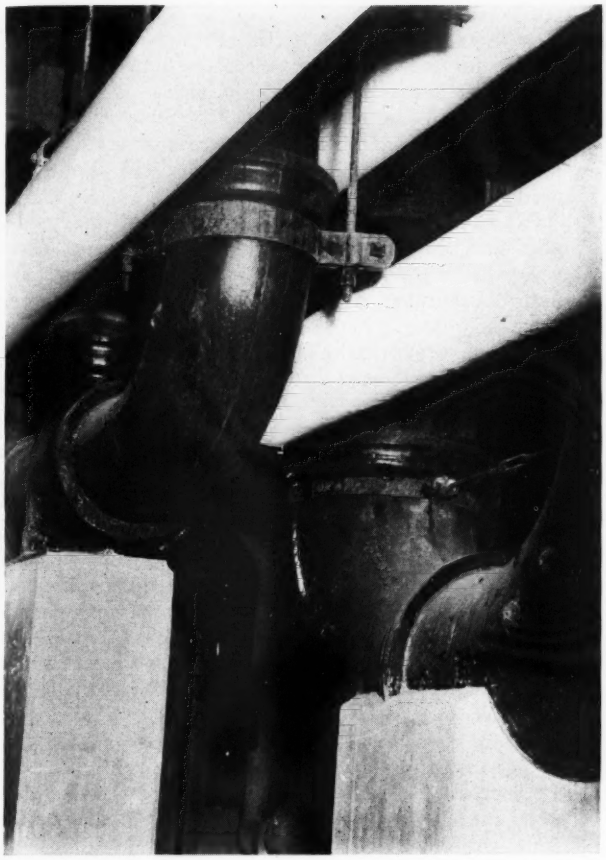


Fig. 2—The illustrations at the left shows the three main traps for the Women's Clinic building. These are located in the sub-sub-basement apparatus room. Left to right: 10-in. acid, 16-in. sanitary and 30-in. storm sewers

with anti-vibration mats. Hangers for all of the discharge pipes from pumps to tanks are cushioned with sheet lead. Iron size brass pipe is used throughout for all water supplies. Insulation has been applied to these supplies and also to certain sections of rain water leaders.

For the southerly group, these tanks are all located in the main hospital building; the surge tank of 90,000 gallons being at the sub-basement level; the intermediate low zone tank of 44,000 gallons capacity being at an apparatus floor grade of + 197.0 located between the 11th and 12th floors; and the high zone tank of 72,000 gallons capacity being at the equivalent of the 26th floor with a grade of + 381.0.

The main hospital surge tank is fed through a ballcock from an 8-in. header formed by six 6-in. cold water metered services. Two of these services are from York Avenue, two from Exterior Street and one each from 68th and 70th Streets. From the surge tank a 10-in. suction is run to the two high and three low zone cold water pumps in the sub-sub-basement at grade 0.0. The two 350 g.p.m. high zone pumps feed the high zone house tank through an 8-in. pipe. The three 500 g.p.m. low zone pumps feed the low zone tank through a 5-in. pipe. The use of three pumps for the low zone tank not only gives an emergency stand-by pump but also permits the use of small pumps, one of which amply cares for periods of normal demand. Two may be in use during peak loads, the third for abnormal demands.

The high zone domestic header is 8-in. with a down feed riser from which a header at the 23rd floor ceiling is taken to supply cold water to all high zone (12th floor and above) fixtures and to the water closets on the 11th floor, and hydrotherapy suite on the 8th floor. From this riser there is a 3-in. valved supply, which is also fitted with a ballcock control, to the intermediate tank. There is a 6-in. valve controlled connection from this riser to the low zone domestic water header.

THE LOW ZONE SYSTEM

The low zone domestic header is 8-in. from which the down feed risers supply cold water to all the low zone fixtures. From this low zone header, mains are also run to serve as headers for the down feed systems in the women's clinic and in the center section of the medical school. The psychiatry building and the remainder of the medical school have up feed risers which also have for their source the low zone domestic water header.

From the cold water header formed by city services there are run valve-controlled branches connecting with the down feed cold water risers. These cross-connections with the city supply header were installed for emergency purposes and to make use of the direct city pressure in the lower floors in the event of an interruption in the source of supply to the low zone header. For those building units having the tank pressure cold water header in the lower part of the building, of course this cross-connection to the city main is made directly with the city service header in the lower part of the building. The main hospital tank pressure cold water header is looped through each of the two tunnels which connect the psychiatry building with the main hospital and a main to supply the up feed riser system of the psychiatry building is taken from this loop.

In order to provide means for washing down the roofs of the main hospital building, there has been installed a small pumping unit on the high zone house tank level.

For the northerly group,

Although this is a series of articles, it is not necessary to read the first installment in our June issue to understand the interesting features described in this second article. One section here tells how the main hospital hot water supply is divided into a high and low zone system

the surge tank of 46,000 gallons capacity is located in the power house sub-sub-basement at about grade — 5.0. There is a house tank of 30,000 gallons capacity on the 12th floor of power house at grade + 155.0 and a house tank of 11,000 gallons capacity on the 17th floor of the nurses home at grade + 199.0.

The domestic cold water for the northerly group is not connected with that of the southerly group. The services for this group are all metered and consist of one 6-in. line from York Avenue, a 4-in. line from 71st Street and an 8-in. line which is metered through two 6-in. meters from 70th Street. An 8-in. header is made of these services. Provisions have been made with plugged outlets so that this header may be connected with future services from Exterior Street by means of a 6-in. main. This header supplies the surge tank through a ballcock. From this tank an 8-in. suction pipe is run to the nurses home and to the power house pumps located in the power house sub-sub-basement at grade — 7.0. Provisions have been made for future pumps to supply a house tank in a future building.

PUMPING PROVISIONS WHICH HAVE BEEN MADE

The house tank for the nurses home is supplied by two 150 g.p.m. pumps through a 5-in. pipe. The 8-in. header from this tank supplies the cold water down feed risers. As in the southerly group, these risers have at the bottom an emergency connection to the city cold water header formed by the city services.

The power house house tank is supplied by two 350 g.p.m. pumps through a 5-in. riser. The 8-in. header from this tank supplies the entire building through an 8-in. down feed riser having a 6-in. cold water header at the 10th floor ceiling which serves all the domestic down feed risers and a 5-in. branch at the second floor ceiling supplying the eight present and four future laundry washers located on the third floor at grade + 54.0 and a 5-in. branch to the laundry hot water tanks in the basement at about grade + 19.0, and a 4-in. branch to the domestic hot water tanks in the sub-basement at grade + 13.0, and then continues to sub-sub-basement where there is a full-size connection for the sprinkler system. This 8-in. down feed riser is also connected at the sub-sub-basement to the header formed by the city service.

From 70th Street there is also a 6-in. metered service which supplies the condenser coils of the refrigerating system. After passing through these coils, the water goes to a special riveted steel receiving tank. There are two outlets on this tank; the upper one is 8-in. and is a discharge to the sewer. The lower one is a 6-in. and discharges to the power house surge tank through a ballcock at the surge tank. This 6-in. service for the condenser coils also supplies the boiler feed water heaters through a 5-in. pipe.

There is a 4-in. service from 71st Street for the use of the boiler room. This also is cross-connected to the 8-in. down feed from the house tank and also to the header composed of city services.

All fixtures which have direct-connected water supplies are protected with anti-syphon devices. Where valves are used for group-control at various floors, the fixtures controlled by these valves are all on the same floor.

In each group there are several separate hot water systems and for each system there is installed a cold water meter on the cold water supply to the hot water tanks of the system. All hot water tanks are of copper-lined steel and are fitted with copper coil heating elements which are removable. These hot water tanks are installed in pairs so that a system will not be affected greatly if a tank must be cleaned or repaired. Because of the location of the house tanks supplying the hot water tanks, circulating pumps are not required on the hot water systems which are all of the type consisting of overhead main with down feed risers.

The main hospital hot water supply is divided into a high and low zone system, each having its own set of two tanks located in the sub-sub-basement at grade 0.0. The low zone tanks each have a storage capacity of 2,350 gallons and a heating capacity of 3,000 g.p.h. and are supplied by a 5-in. pipe. Also, each has a 6-in. hot water main which forms a header on the 9th floor ceiling from which down feed risers are run. Each of the high zone tanks has a storage capacity of 1,800 gallons and a heating capacity of 2,500 g.p.h. and is supplied by a 4-in. pipe and has a 5-in. hot water main run to the

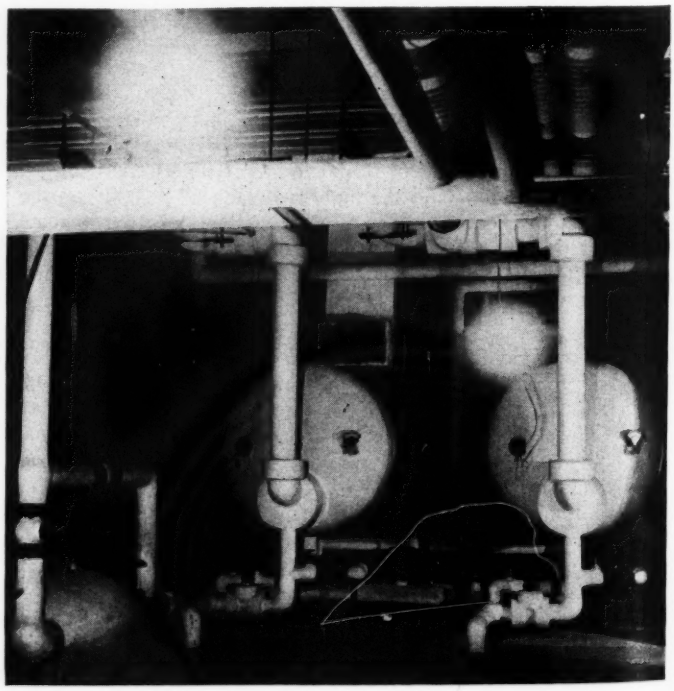


Fig. 3—Here are the high zone domestic hot water boilers in the sub-sub-basement of the apparatus room of the main hospital building

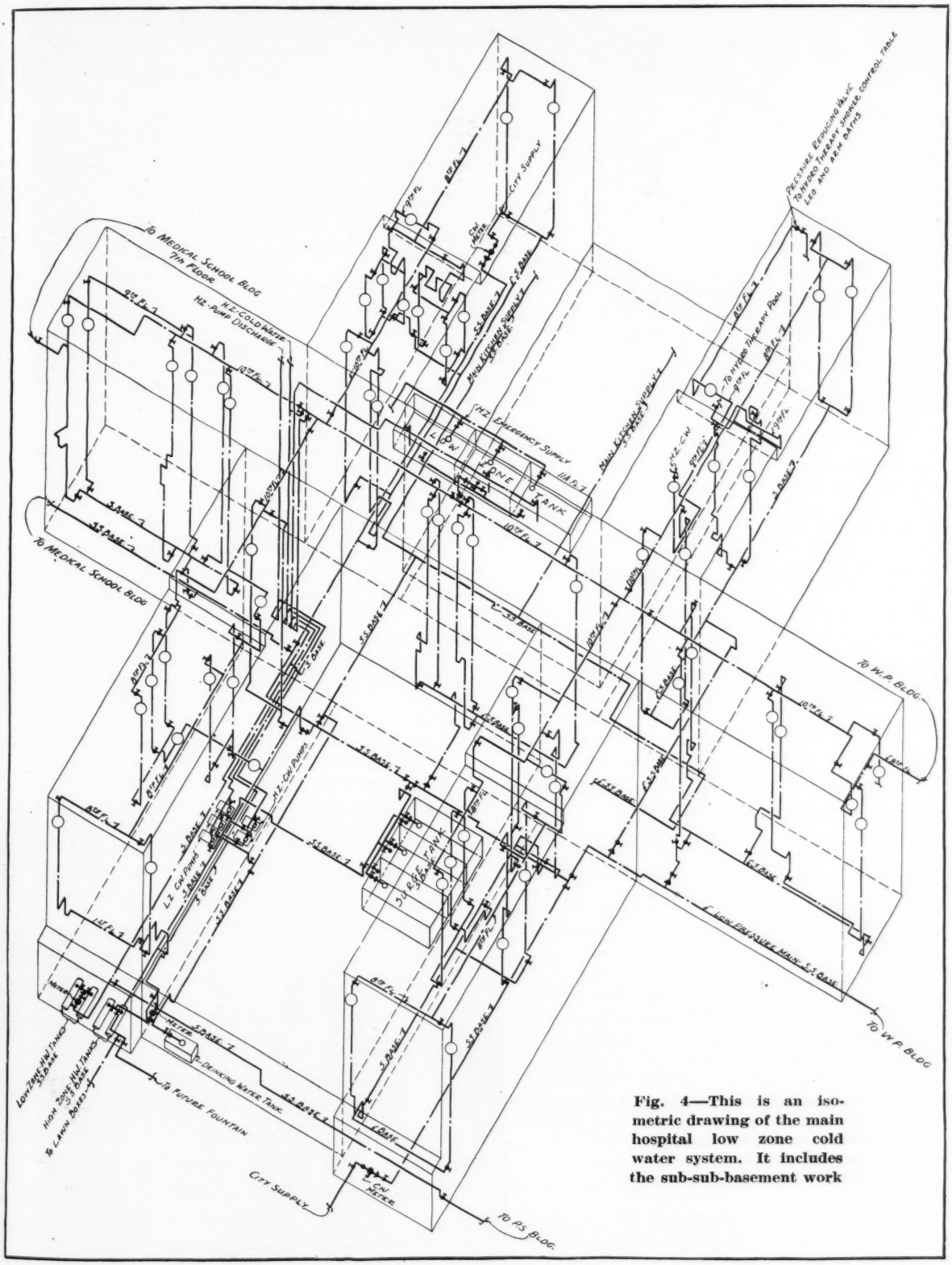

To Medical School Bldg 7th Floor
H.Z. Cold Water H.P. Discharge
To Medical School Bldg
City Supply
Pressure Reducing Valve To Hydro Therapy Shower Control Table Leg and Arm Baths
To Hydro Therapy Pool
To W.P. Bldg.
To W.P. Bldg.
To Future Fountain
To Drinking Water Tank
City Supply
To P.S. Bldg.

Fig. 4—This is an isometric drawing of the main hospital low zone cold water system. It includes the sub-sub-basement work

ceiling of the 23rd floor supplying the down feed risers which are connected at the 10th floor ceiling. The return to the tanks is a 2½-in. circulation line.

The hot water for the women's clinic and pediatrics building is obtained from two tanks located in the sub-sub-basement at about grade —4.0. Each tank has

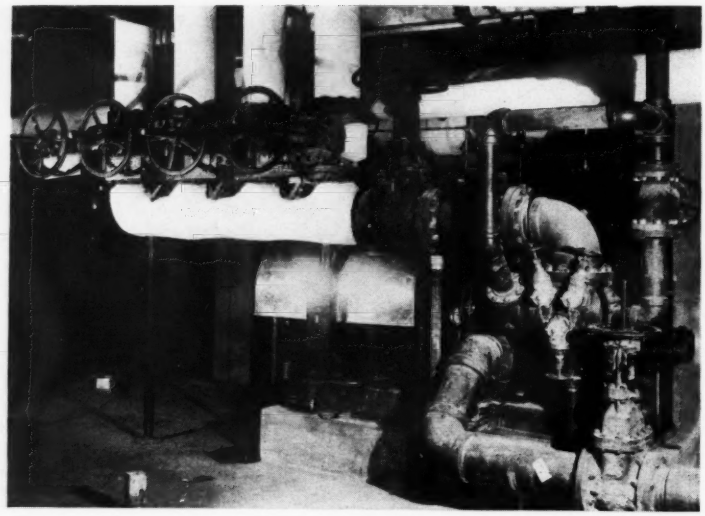


Fig. 5—These fire pumps are located in the sub-sub-basement of the power house apparatus room

a storage capacity of 2,100 gallons and a heating capacity of 2,500 g.p.h. Each is supplied through a 4-in. pipe and has a 4-in. overhead loop in the pipe space above the 8th floor with downfeed risers.

The psychiatry building hot water is separated into two systems, a high and a low temperature. This division is made as a precautionary measure in avoiding accidents to patients. The low temperature system is supplied to such fixtures as lavatories, bath tubs, showers, etc., as will be used by the patients of this building. As the maximum tank temperature is established at 110 deg. Fahr., no danger is anticipated. The showers for the patients in this building are further protected with mixing valves and on all continuous flow tubs special thermostatically controlled valves to operate at a maximum of 100 deg. Fahr. on the hot water supply are used. In addition to this, the attending nurse has a visible means of checking the temperature of the water in the showers used by certain patients by an easy reading dial type thermometer installed on the supply to the head. The high temperature water is run to all other hot water fixtures in the building. Each of the systems has its own two hot water tanks. Each of the four tanks has a storage capacity of 1,000 gallons and a heating capacity of 800 g.p.h. The low temperature tank coils have only a 70-degree rise while the high tempereature tank coils have a 140-degree rise similar to the heating elements of all of the other tanks throughout the project. These four tanks are located on the sub-sub-basement floor and are supplied through one cold water meter, the low temperature system having a 4-in. branch and the high temperature system having a 3-in. branch. For both systems the overhead loop with downfeed risers is used, the size of hot water mains being 4-in. and 3½-in. for the low temperature and high temperature respectively.

In the sub-sub-basement of the bacteriology wing of the medical school, at grade + 1.0, there are two hot water tanks each having a storage capacity of 1,100 gallons and a heating capacity of 1,500 g.p.h. They are supplied through a 4-in. pipe and have a 4-in. hot water header run to the ceiling of the sub-basement from which a 3-in. main is run to the anatomy wing and a 3-in. main to the bio-chemistry wing and a 3½-in. main to serve the two center wings of the medical school which are the highest at present. These three mains form separate overhead loops with downfeed risers and are returned to the hot water tanks in one pipe.

The power house building hot water for other than the laundry, is supplied through two hot water tanks on the sub-basement floor at grade + 13.0. Each tank has 850 gallons storage capacity and a 1,500 g.p.h. heating capacity. This hot water system has an overhead loop with a 3½-in riser and a header at the 10th floor ceiling and downfeed risers. For the laundry hot water tanks, each of 1,800 gallons storage capacity and having a 6,000 g.p.h. heating capacity, a 5-in. main, without a circulation loop is run to the laundry washers. On both the hot and cold water supply branches to each washer there is installed a large oversized air chamber with a draw-off and air cocks. These are made necessary because of the use of quick acting valves on the washers while all of the other fixtures throughout all buildings

(Continued on Page 153)

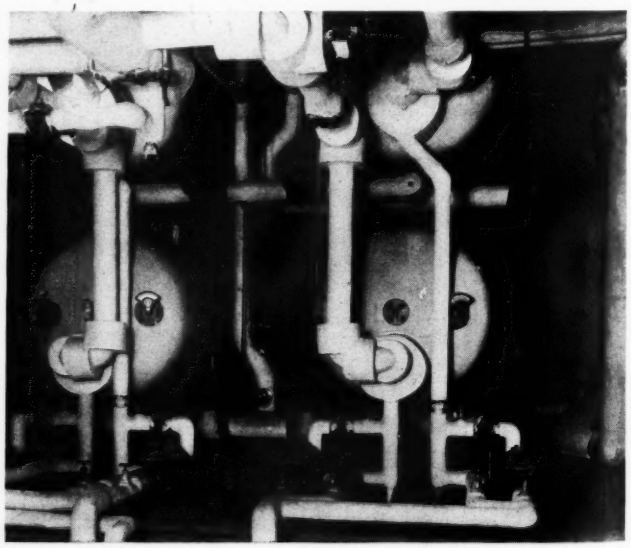


Fig. 6—Here are the high temperature and the low temperature domestic hot water boilers in the sub-sub-basement apparatus room of the psychiatry building

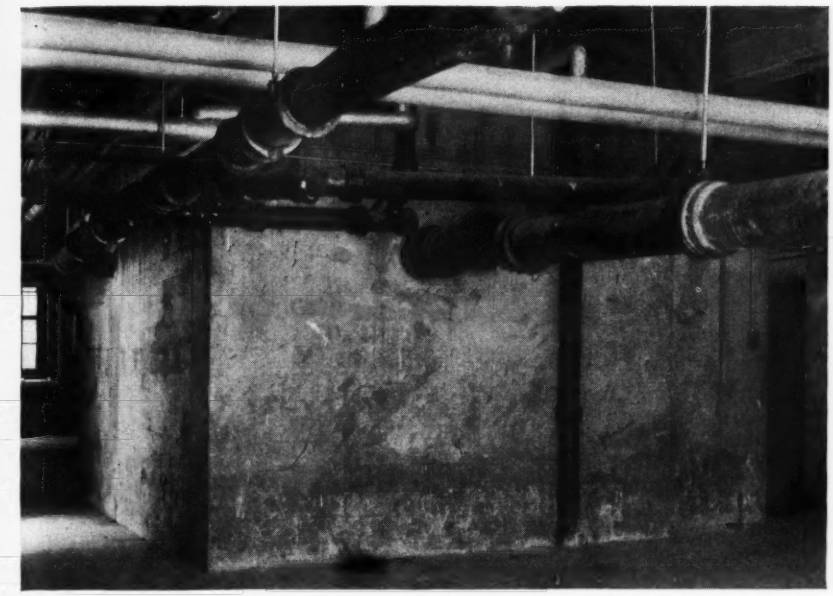


Fig. 1 — This grease trap is 18 ft. long, 10 ft. wide and 10 ft. high. It removes the grease from the waters used in preparing meals for several thousand students

Trap Collects 1000 Pounds of Grease Per Month

By R. M. STARBUCK

THE largest grease trap we have ever seen is the one which has been built at Duke University, Durham, N. C.

It is used in connection with the kitchens which serve several exceedingly large students' dining rooms.

Duke University is an institution of tremendous proportions, and when fully organized it will have in its charge several thousands of students, and as these students have the one common eating place, this grease trap is required to serve large numbers of students,—hence its size.

Its dimensions are 18 ft. long by 10 ft. wide by 10 ft. high.

The trap in question is shown in Fig. 1, which gives some idea of its impressive proportions.

It is located in the basement. This consideration is a favorable factor in the successful operation of the grease trap, for these traps separate out the grease from the sewage containing it, by utilizing cooling effects in various ways,—and being in a cool basement, naturally tends to produce the desired result.

Fig. 2 shows the area directly over the grease trap, and forming its top.

There are two manholes shown, used for cleaning purposes, also two cleanouts, one of which is at the high point of the vent. As we look at it, this vent is in the nature of a fresh air inlet.

Referring to Fig. 1, the outlet from the trap is the single large pipe, and the pipe which receives several branches, and which connects into the side of the trap, is the inlet line, carrying greasy wastes from those points where the waste is created.

The outlet from the trap is a 6-in. pipe.

We estimate that the capacity of this trap is something like six thousand gallons.

That the intercepting of the grease from the kitchen wastes is a wise measure in this particular instance, is not to be questioned, for the sewage from the entire Duke University project is handled by a system of Imhoff tanks, and this holding back of large quantities of grease is to be regarded as a protective measure.

1000 POUNDS OF GREASE PER MONTH

Imhoff tanks do not successfully handle or reduce large quantities of grease, and because of the consequent clogging effect, such grease should not be allowed to discharge into these tanks. At the present time 1,000 lb. of grease are extracted from the trap each month.

We believe the handling of greasy wastes by means

of a single trap of such large dimensions as the Duke University grease trap is quite unusual.

Generally this problem is solved by the use of single grease traps serving the several kitchen fixtures in which grease is created.

The question arises as to which of the two methods is most efficient and most sanitary.

This is an open question, on which there may be a wide variety of opinion.

We understand that the installation illustrated in Figs. 1 and 2 is operating successfully. While realizing that the proof of the pudding is in its eating, nevertheless we are favorable to the unit plan of handling this problem,—that is, we favor the use of separate grease traps or grease interceptors, for the various grease-producing fixtures.

We take this position however, not at all in the spirit of criticism of the Duke method.

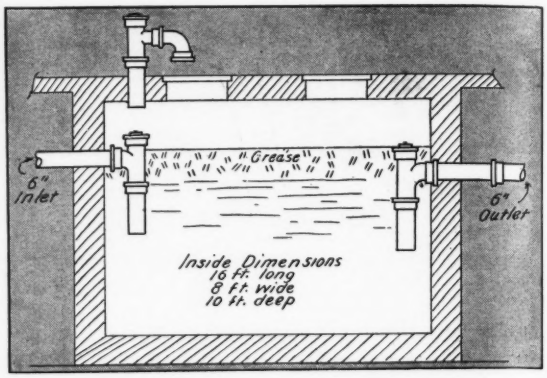


Fig. 3 — A cross-sectional view of the grease trap described in this article is illustrated here

SCOURING ACTION IN TRAP

We want to make clear our reasons for this opinion.

One of the most important requirements in the construction of a trap is that it shall be self-cleansing or self-scouring. Even in the case of the ordinary grease trap, such as is used under kitchen fixtures, the body of the trap is so large in proportion to the size of the inlet and outlet pipes that some of the scouring effect is lost. Scouring effect is obtained in a P-trap or a running trap for instance, because its waterway is of the same diameter throughout, therefore there is no loss of momentum,—the sewage is not slowed up at any point by running into and through a larger body of water than it had previously been travelling in.

We see therefore that in the ordinary grease trap, the advantage of scouring action is reduced. To a much greater extent is scouring action lost in such an immense trap as shown in Fig. 1. As a matter of fact, in our opinion such a trap as this actually stands as a cesspool and not as a grease trap.

A second most important requirement in the use of grease traps is that they shall receive frequent, periodic attention.

That grease traps in a great majority of instances do not receive sufficiently frequent attention, is perfectly well understood by anyone who is at all conversant with the subject. This fact is generally the greatest argument that can be advanced against their use.

By attention, we mean the extracting of the grease that accumulates in them. In the case of hotels and restaurants, the sale of this grease often realizes a substantial sum of money. Whether the grease is sold or thrown away, it is absolutely necessary that it be removed at regular intervals. If this is not attended to, the trap becomes filled with grease and then it is carried over into the drain, ultimately closing or clogging this line of pipe and eventually making a very obnoxious, inconvenient condition, requiring the outlay of considerable expense in the restoring of the waste line to effective condition.

Some plumbing codes require the use of a grease trap under the kitchen sinks of residences as well as in hotels and restaurants.

In the case of the grease trap to be seen in Fig. 1, we think that while its size is against it, and makes of it really a cesspool,—in the matter of receiving regular attention it is in a much better position than most grease traps either in residences, hotels or restaurants. Without doubt it becomes a part of the regular duties of some care-taker to see to it that this trap is

Fig. 2—Here is the top of the grease trap shown in Fig. 1. It shows the manhole covers, fresh air inlet and cleanouts

periodically cleaned out—and thus kept in a perfectly sanitary condition.

Undoubtedly then, this particular grease trap will be looked after with great regularity. If not, the condition would likely become very bad.

Because institutions are generally well provided with care-takers with clearly defined and regular duties, it is often the case that the use of certain equipment can be safely and successfully made in institutions, whereas the same equipment would fail under conditions where the servicing was no one's responsibility.

There is another thing about this grease trap that causes us to wonder,—does the water in the trap change rapidly enough to produce the maximum of cooling effect?

We show in Fig. 3 a sectional view of the Duke University grease trap. Actual inlet and outlet connections are as seen in the illustration. The inlet and outlet pipes are each of 6-in. diameter.

Practical Problems in Mathematics

How to Figure Discounts

AN APPLICATION of percentage with which every contractor has to be familiar is the percentage off of the list price which he must pay for various materials. It is very unusual to have any price list quote prices net.

For example, a consumer might get 10 per cent off the list, a small contractor 10 per cent and 10 per cent, and a large contractor 10 per cent, 10 per cent and 5 per cent. On top of all these might be an additional discount of 5 per cent for cash in 10 days or 2 per cent for cash in thirty days.

Where a big increase in cost has occurred since issuing the price list there may result an additional percentage to be added to the list price instead of being deducted. This is frequently termed as 10 per cent "on" or 20 per cent "on" whereas the ordinary discount is spoken of as 10 per cent "off" or 20 per cent "off."

Discounts have one peculiarity and that is that the list price is taken as the base only for the first discount. For example, with a discount of 10—10—5 on a bill for $12.00 the first 10 per cent is figured upon and is deducted from the $12.00; the second 10 per cent is figured on and deducted from the amount obtained after performing the first operation and the 5 per cent is figured on and deducted from the amount obtained after the second operation, thus:

1st Base and List Price	$12.00
First Discount of 10 per cent	1.20
2nd Base	$10.80
Second Discount 10 per cent	1.08
3rd Base	$ 9.72
Third Discount 5 per cent	.49
Net Price	$ 9.23

If the discounts had all been figured on the list price as a base the result would have been misleading and incorrect because on this basis the net price would work out

1st Base and List Price		$12.00
Less 10 per cent of $12.00 or	$1.20	
Less 10 per cent of $12.00 or	1.20	
Less 5 per cent of $12.00 or	.60	
Total Discount		3.00
Net Price		$ 9.00

Another way of looking at the matter of discounts which is simpler and quicker is to remember that the price paid will be 100 per cent minus the discount. In the instance cited above the price after the first discount would be 90 per cent of the list (as 100 per cent — 10 per cent discount = 90 per cent) and the second amount would be 90 per cent of the 1st price obtained (as 100 per cent — 10 per cent 2nd discount = 90 per cent) while the last price would be 95 per cent of the amount obtained after the 2nd discount. Thus:

List Price and Base	$12.00
$12.00 × 90 per cent	10.80
$10.80 × 90 per cent	9.72
$9.72 × 95 per cent	9.23
Net Price	9.23

A further short cut is possible by developing a resultant percentage of payment which will allow the calculation to be performed all in one operation. This resultant percentage is obtained by multiplying all the discounts together after subtracting each one from 100 per cent and changing to decimal form, thus:

(100 per cent — 10 per cent) × (100 per cent — 10 per cent) × (100 per cent — 5 per cent)

or

90 per cent × 90 per cent × 95 per cent

or, changed to decimals,

0.90 × 0.90 × 0.95

which is

0.7695 resultant.

Expressed in percentage this will be

0.7695 × 100 = 76.95 per cent.

This means that after deducting the discounts of 10, 10 and 5 from the list price in the proper manner the net price will be 76.95 per cent of the list in proof of which

$12.00 × 0.7695 = $9.2340 net price.

This decimal may be used to obtain the net price on any article which carries the discounts of 10—10—5 and a similar resultant may be computed by the same process for any combination of discounts, for example, a discount of 25—15—10 will give a resultant of

(100 per cent — 25 per cent) × (100 per cent — 15 per cent) × (100 per cent — 10 per cent)

75 per cent × 85 per cent × 90 per cent

0.75 × 0.85 × 0.90

0.57375 or 57⅜ per cent.

Plumbing Plays Important Part in Olympic Games

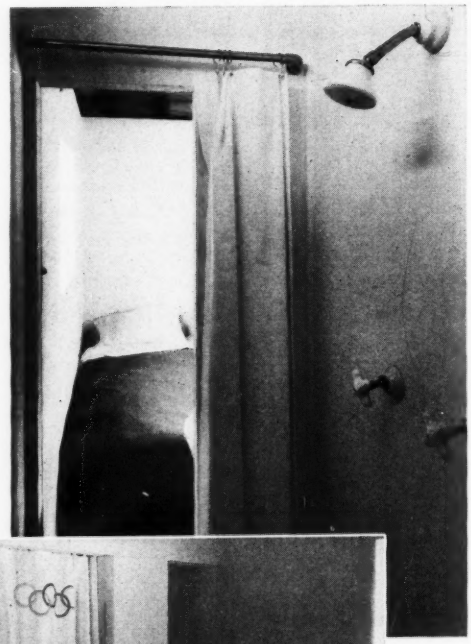
2000 Athletes Housed Temporarily

IN BALDWIN HILLS, on the outskirts of Los Angeles, there has been built a little village unique in the annals of construction. It was planned and erected, at a cost of $50,000, for an occupancy of thirty days! This little city is the Olympic Village, where more than two thousand visiting male athletes from forty different countries will be housed during the Olympic games. Women participants will be quartered in hotels adjacent to the Olympic stadium.

At previous Olympiads, since the revival of the ancient competitions, the teams from the various countries have been scattered broadcast throughout the city, where the games were held, in hotels, boarding houses, apartments and schools.

The organizing committee for the games of the Xth Olympiad, Los Angeles, 1932, wished to devise some scheme that would intermingle men of all nations and create a friendly understanding among them, and set about working out a plan of housing all male athletes in one place. Cutting down living expenses was another item in favor of the erection of the village, since many of the teams must travel long distances to reach Los Angeles, at considerable cost.

The first idea was to construct large houses of eighteen rooms each, six men to a room, but in order to assure the greatest privacy and possible rest for contenders, the unique plan of constructing a village of two-room bungalows, four men to each unit, was developed, at considerable additional cost. Here athletes will eat, sleep and be entertained while in Los Angeles.



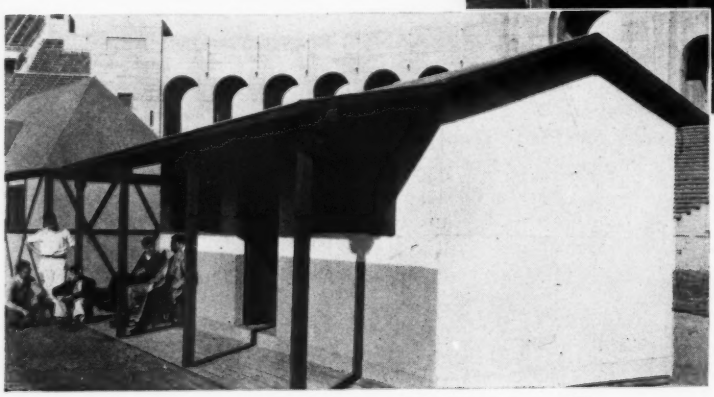


Fig. 1—At the left is shown one of the 550 bungalows erected to house the contestants. Fig. 2—Immediately above is the interior of one of these buildings with the lavatory in place. The door at the right opens into the shower which is shown in Fig. 3—Above. This shower is available to both of the bedrooms

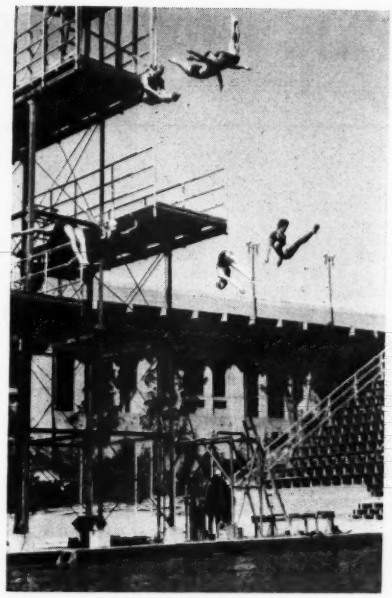


Fig. 4—This is the Olympic swimming stadium with temporary stands built over the children's wading pool at the right

Construction work on the village began in January, the first project being the laying of five miles of water mains and the grading of eight miles of roads. An eight foot barbed wire fence was used to enclose the tract of three hundred thirty-one acres.

The plan of the village called for the erection of an administration building, to house the offices of the foreign attaches, and postoffice, banking, telephone and telegraph facilities, a commissary, and headquarters for linen, laundry and baggage; a hospital; several large kitchens and dining room units; an outdor theater; and five hundred fifty bungalows. The different dining rooms and kitchens will be broken up into units for each country, where a chef for that team will preside to prepare the kind of food to which the respective foreign athletes are accustomed.

Bungalows are 10 ft. by 24 ft. in size, of Mexican farmhouse architecture, and are constructed of an insulating material, designed to deaden sound and enable contestants to rest undisturbed by any bustle or confusion around them. The arrangement of housing four men to a room is advantageous in that participants in the various branches of athletics competing at night may have an opportunity to sleep in the morning without being bothered by others getting up for early meets. Each house is equipped with four beds, four chairs, two tables, two rugs, linens, blankets, lights and plumbing fixtures. There is one shower bath between the two rooms, while each room contains a wash bowl and wardrobe.

Large bath houses were erected at strategic points in the village, to provide private compartments for hot and cold showers, tub and steam baths. For every few houses, a comfort station was built. Hot and cold water was necessary for the administration buildings and the kitchens. This complete plan called for an extensive plumbing installation, which presented a problem to the Organizing Committee.

Since the village was to be occupied at the very most for only thirty days

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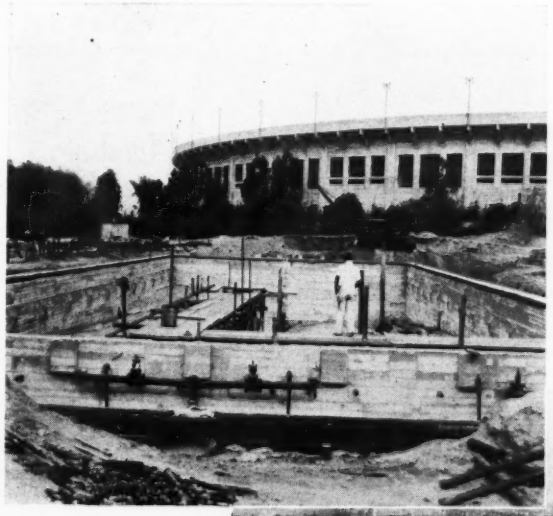


Fig. 5—Above is seen a construction view of the swimming stadium, a part of the piping may be distinguished. Fig. 6—At the right is a general view of the entire project. This shows the permanent stands at the extreme right, the main pool in the center and the wading pool for children, at the left. Various facilities are contained in the permanent grandstand structure

Summer Comfort In Demand

AND there are so many new things in plumbing equipment to minister to home comfort that we strongly urge a visit to our place of business. Here we can show you the refinements in water heaters, in kitchen sinks—in everything that goes to make for efficiency in plumbing. To the housewife that efficiency means greater comfort and convenience and, as is always the case, efficiency means economy in terms of time and money. By all means drop in—you will find your visit interesting.

(In this space Your Name, etc.)

A single-column plumbing ad

My dear Madam:

This little letter is about summer comfort--and how modern, efficient plumbing fixtures will contribute to it.

Think, for example, of the kitchen and all that goes on there. It is, in a very real sense, the heart of the home. It deserves the most careful planning in order that the household tasks done in it may be accomplished with the smallest possible outlay of energy and the greatest possible convenience.

Manufacturers of plumbing equipment have done a number of things in recent years to make kitchen tasks less burdensome. Such refinements run all the way from the swinging spout faucet to the electric dishwashing sink; all the way from a study of the correct height for the kitchen sink, to the production of metal sinks.

In summer, particularly, the hot water supply is a matter of importance, and with an automatic heater in the basement you are assured of a constant supply at need. Besides, you eliminate the added heat in the kitchen.

I'd be very glad indeed to have you visit our place of business to see the fixtures we have on display. They are colorful, modern in design, convenient and comfortable. And you will agree that every ounce of energy you can save in the kitchen means a greater enjoyment of the evening with your family.

If you care to phone before visiting the store, I'll be glad to be here.

Very truly yours,
HARRY BROWN

A plumbing sales letter

STUDY TO CONSERVE HOUSEWIFE'S ENERGY

"Ever since the women's clubs of America interested themselves in studying the work of the home maker," says Harry Brown, local plumbing contractor, "there is a greater interest in conserving the energy of the ladies who manage our homes.

"They studied the relative value of large and small kitchens, sources of water supply—and all sorts of angles to the job of housekeeping, which would go to show that it's something of a science. Results have shown up in plumbing fixtures in a number of ways—all tending to make the home manager's work more convenient and efficient.

"And I haven't a doubt in the world that saving the energy of the real head of any family actually contributes to the contentment of that family's life."

Hand this publicity item to your newspaper

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING — without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve—six months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

Inspect Plumbing

The plumbing system is a mechanical system. It should be inspected periodically and small adjustments made before they grow to be big ones.

Summer is a time for efficiency—for conserving energy to meet the enervating heat. Small inconveniences seem to grow into insurmountable difficulties when one must endure them through hot, humid days.

Now's the time to have us go over the plumbing in your home, eliminate leaks, noises—bring the plumbing system up to the peak of efficiency. We'll send a man at any time you set.

(In this space Your Name, etc.)

A single-column plumbing ad

SERVICE

My dear Madam:

Have you ever wondered just how to bring the open radiators in your home into harmony with your furniture and the other decorations?

Let me suggest that you drop into the store here and see what we have to offer in the way of radiator cabinets--or I shall be glad to call on you at any time you care to indicate.

Radiator cabinets are now made in a variety of styles and finishes--and at necessity can be finished to harmonize with whatever decorative scheme you already have determined upon, or may already exist in your home.

These cabinets serve, then, two purposes. They cover the radiator, which is desirable, and they add what amounts to another piece of furniture, blending quietly into its surroundings.

Decorative harmony is difficult to achieve without them. After all, the utility of the radiators carries certain necessities of design--and the addition of the radiator cabinet eliminates this difficulty.

I shall be glad to have a telephone call from you that you are coming in for a visit--or to ask me to call on you.

Very truly yours,

HARRY BROWN

A heating sales letter

Radiator Covers In Many Designs

Manufacturers of radiator cabinets have studied to make them blend in with any decorative scheme—and they can be especially made when that is desirable. The important thing is that they eliminate the radiator—always difficult to "get around" in planning a room—and bring it into harmony with the other furnishings. We have a wide selection.

(In this space Your Name, etc.)

For newspaper ad or blotter copy on heating

Don't overlook the value of publicity. Use the two items in these pages—then clip them out of your local newspaper and send them to us. We'll be interested in seeing them.

BEAUTY AND UTILITY IN RADIATOR CABINETS

"The problem of home decoration is simplified when the radiator cabinet is chosen to harmonize with the other furniture," says Harry Brown, local heating contractor.

"After all, it is a bit difficult to make a radiator, by itself, look as if it should be on speaking terms with fine Colonial or Chippendale furnishings. But the makers of radiator cabinets have taken care that, in design, they have something to offer which will blend in with the other furnishings and add a further touch of beauty to the room. In this they have reached the highest art —combining beauty with utility."

A piece of heating publicity

Radiators Are Useful . . . . But

WHEN you start to plan the decorations for a room—it is a bit difficult to fit in the bare radiator. That's why we carry a selection of radiator cabinets which will enable you to bring the radiator into the decorative scheme, without eliminating it as a necessity. We can match any type of furniture, of any period—taking away the possible clash between the bare radiator and the other room furnishings. Come in and see the selection on display. You'll see how this note of charm may be added to your living rooms.

(In this space Your Name, etc.)

A single-column heating ad

Plumbers at 50th Question Need of

California Association asks for direct purchase by dealers from manufacturers —National Organization will investigate Pacific coast conditions—Large crowds at New York convention marking National Association's 50th Anniversary

THE golden anniversary convention of the National Association of Master Plumbers earned that title for two reasons—the celebration of the fiftieth birthday of the organization and the high level of interest in the convention and its accompanying exposition. New York, where the convention met June 21-23, and surrounding territory, turned out in large numbers. While the attendance from distant points was naturally smaller, the total number at the meetings and in the exposition booths was large. Exhibitors almost to a man classed the exposition as one of the best in which they had participated. The regular and large attendance at the convention sessions testified to the variety and importance of the work done by the Association, the interest in the reports of such work and the desire to secure ideas for practical application in the businesses and home towns of the delegates.

Edward B. Kleine of Cincinnati, O., was elevated from the vice presidency to become the 46th president of the National Association of Master Plumbers. He has won that honor through years of effective association work in Cincinnati and Ohio, coupled with national experience both as a director and as secretary.

Robert J. Barrett of Washington, D. C., a national director for the past two years, was the unanimous choice for vice president, a testimonial to the whole-hearted way in which he has worked as a director. His location in Washington, where the association's office was opened a year ago, afforded him a splendid opportunity for effective work in promoting national affairs.

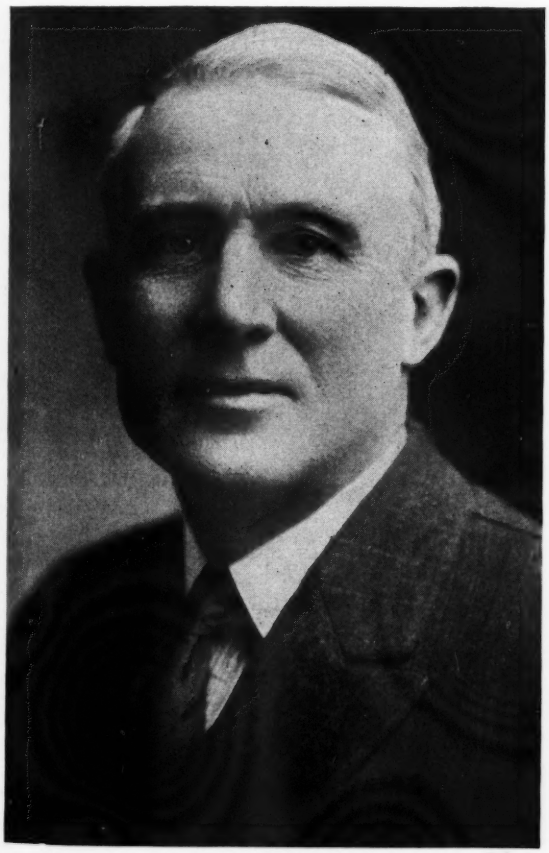
H. O. Green of Tulsa, Okla., was re-elected national treasurer in recognition of his handling of that position for the past two years. Edward Frank of Cincinnati was selected as secretary, he also having had years of effective work behind him in city and state association activities.

To Retiring President P. W. Donoghue of Boston, abundant evidence was given by the delegates of their appreciation of his work during his 12-month administra-

EDWARD B. KLEINE
Chosen as the 46th President of the National Association of Master Plumbers

National Meeting of the Wholesalers

Edward B. Kleine is New President—Vice Presidency goes to Robert J. Barrett —New Orleans wins 1933 meeting—Exhibits draw big attendance—Retiring President P. W. Donoghue praised for work—National activities increasing



P. W. DONOGHUE
Who retired as National President after an active and successful administration

tion. The activities of the National association have been constantly increasing and under Mr. Donoghue's direction, these activities have been effectively directed to the advancement of the entire industry.

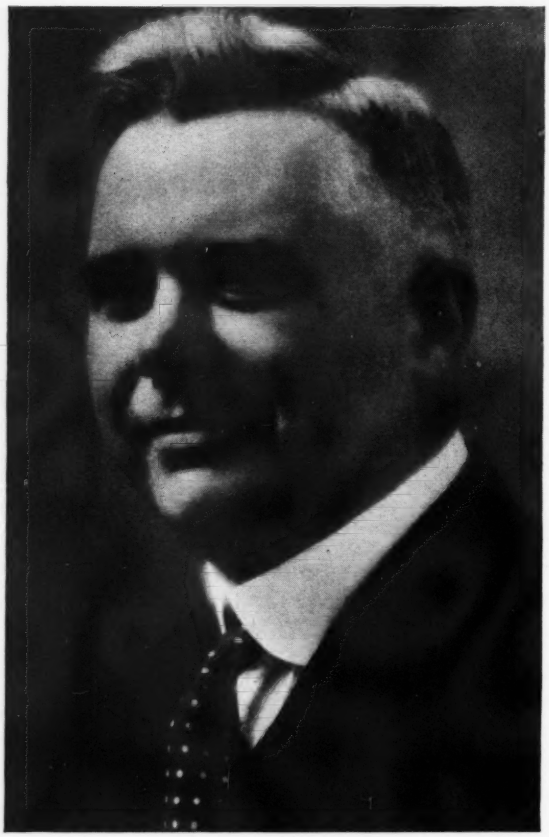
Just as this issue was going to press, DOMESTIC ENGINEERING was able to secure for its readers the first complete abstract of the important survey carried on by the National association in Cincinnati to secure marketing facts and determine just what direct selling agencies are doing, how much they sell proportionately and what position the plumbing dealer holds as a selling force and in the way of a credit risk. This report is so important that we have published it in full (pages 79 to 90). As a result, this convention report is sharply curtailed in his issue. Additional particulars will be published next month.

The convention and exposition were prepared for by a committee headed by Matthew J. Kennedy of New York, every detail having been adequately covered. Mr. Kennedy and his committee received a cordial vote of approval by the delegates for their work.

The educational features carried along during the convention by the sales promotion committee, drew full crowds to both special sessions. Headed by C. W. Wanger, chairman, this committee introduced new features, one in portraying in short sketches by professional actors, historical events in the National's history and also dramatizing suggestions for handling association and business affairs. The other feature was to have a half dozen successful dealers tell of their own personal experiences in selling and in advertising.

The reports of the standing committees, those on apprenticeship, conference, educational, scholarship, and standardization as well as special committees such as those on co-operation with gas companies and on the handling of defective sanitary ware, were indicative of the widespread scope of National activities. They will be covered in a later issue.

New Orleans was selected as the city for the 1933



ROBERT J. BARRETT
Whose work as a National Director won him the Vice Presidency of the National Association

convention, a representative delegation of master plumbers from that city having journeyed to New York to present the advantages in meeting there next year.

One of the most impressive ceremonies of the convention was the presentation of George F. Uber of Philadelphia and Alexander W. Murray of Twin Falls, Idaho, as the only living charter members of the National Association. These men were introduced by Maney J. Feeney, chairman of the charter members committee, and Henry Swade of Chicago, and were presented with tokens intended to show the regard and esteem in which their fellow members held them. Both talked briefly regarding their many years experience as association members. Mr. Uber is the only member of the association who has attended all of the 50 conventions.

The most active discussion of the convention centered around a resolution brought in by the California State association, which it adopted in May. It recited how the number of licensed master plumbers has grown until the individual has difficulty in surviving and especially when expected to finance the display and sale of the manufacturers' products; how direct selling agencies buy at a lower cost than the plumbing dealer; how transportation improvements have removed one of the wholesaler's previous advantages, and because the California group felt that "the jobber is an economic burden and that he is no longer necessary to this business," the resolution called on the National association to indorse the "dealership plan of distribution for plumbing material; namely, manufacturer to plumber dealer to consumer."

In our next issue, we will give more fully the discussion on this resolution which called for eliminating the wholesaler in favor of direct selling by the manufacturer to the retailer. Led by the California delegates, President J. D. Speer of the State association, E. J. Carroll, president of the Los Angeles association and Charles M. Swinnerton, a national director, the arguments in favor of the resolution finally led to a vote expressing sympathy with the conditions of the California plumbing dealers and instructing the new board of directors to give what measure of legal relief they can and notify all states of just what results are secured.

Few arguments were presented in favor of retaining the wholesaler, although several delegates felt manufacturers would need time to readjust their plan of doing business to permit dealing directly with thousands of dealers rather than with hundreds of wholesalers.

ACT ON 29 RESOLUTIONS

Twenty-nine resolutions were submitted for the study of the delegates. They were first considered by the resolutions committee made up of Jere Sheehan, Jr., St. Louis, chairman; J. E. Berger, Bridgeport, Conn.; E. G. Harris, Richmond, Va.; Sam A. Rice, Oklahoma City, Okla., and J. D. Speer, Santa Barbara, Calif.

The first from California asked approval of congressional bills calling for the separation of the mechanical from the general contract on government work. Approval was given since the National association has already been active in working for such legislation. The second resolution from New Jersey favored efforts in the different states to secure such separation of contracts and this was likewise approved.

ABOUT THE PERMANENT INJUNCTION

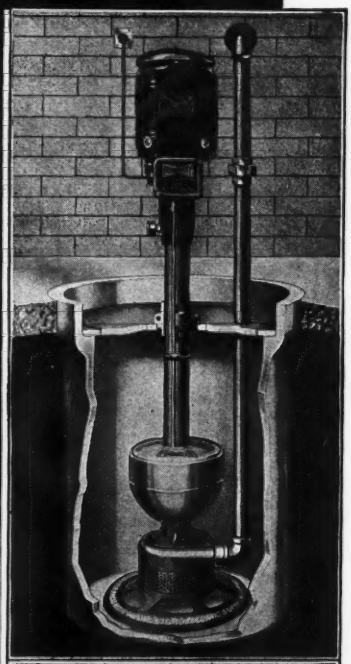
The third resolution suggested efforts to lift the permanent injunction placed on the association some years ago. Frank J. Fee said this could not be done except through special legislation by congress as a court of proper jurisdiction no longer exists. George H. Drake similarly told of a report from attorneys, employed to study the problem. They found that the early cases decided under the Sherman anti-trust law, of which the plumbers' suit was one, carried no provision for reopening under a plea of changed business methods. Later cases provided for such a rehearing. Mr. Drake advised dropping the effort and the resolution on motion of David Craig, Boston, was tabled.

Unanimous approval was given to a resolution from the District of Columbia thanking Mrs. E. D. Hornbrook for her gift of handsomely bound copies of the proceedings of the National association from its formation in 1883. The resolution recorded the organization's appreciation for the many great services rendered to it by both Mr. and Mrs. Hornbrook.

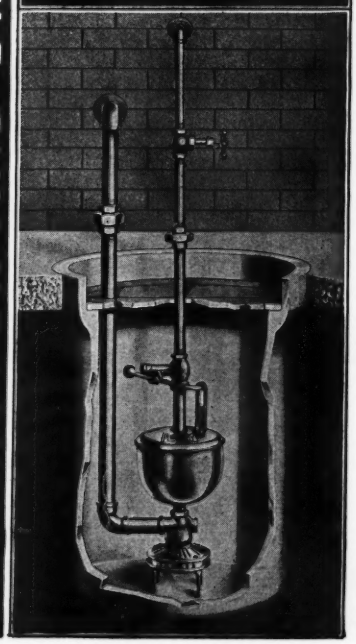
A request from the Pennsylvania state association for reduction in per capita tax from $5 to $4 was referred

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE plumbing contractor need not be told the many advantages ot using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, scale pits, piping tunnels, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

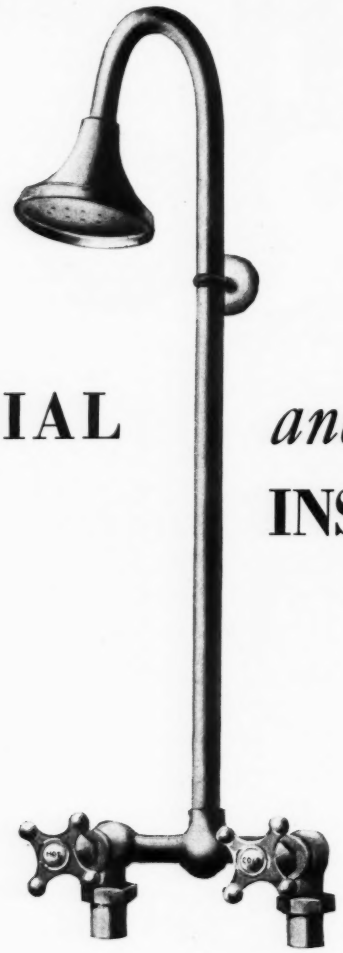
The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER



for INDUSTRIAL *and* HOME INSTALLATIONS

INDUSTRIAL installations impose probably more severe service demands on shower bath fixtures than any other type of shower installation.

Rough treatment is the lot of industrial shower bath fixtures and for this reason, more than any other, you should specify and install the American line of Industrial Shower Fixtures.

The No. 1260 Fixture illustrated, for floor supplies and the No. 1261 Fixture as illustrated, but for ceiling supplies, are furnished regularly in rough nickel plate with cast brass shower head and removable face.

"American" INDUSTRIAL SHOWER FIXTURES

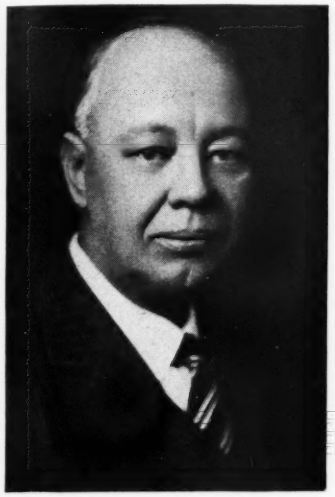
Ask your jobber or write us for full information.

Manufactured by

AMERICAN SANITARY MFG. CO., Abingdon, Illinois

to the new president because of his power to effect economies.

Palo Alto, Calif., introduced a resolution condemning any schedule of contract labor prices, such a plan having been proposed in some sections of California. This



H. O. Green, re-elected treasurer of the National Association

resolution was approved and information given that the president of the United Association of Journeyman Plumbers and Steamfitters was enroute to California to study this development.

The Contracting Plasterers' International Association requested favorable action on a proposal to bring specialized trade organization. together through a perma-

J. Preston Perham, retiring secretary of the National Association

nent committee to work for improvement in the construction field. Because of the many affiliations now maintained by the Master Plumbers associations, it was decided not to join this movement, although if such a committee is formed, the plumbers will work with it.

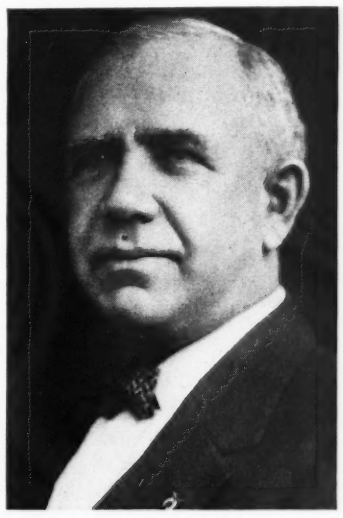
The eighth resolution carried the backing of the Plumbing Contractors Association of Chicago and asked manufacturers of quality plumbing fixtures and appliances who desired to distribute through qualified master plumbers to "adopt a definite, uniform symbol, sign or trade mark which will enable the public to distinguish an authorized dealer from others." It also called upon manufacturers to advertise more widely and to "develop a monthly sales help service and sales program with special sales prices and other modern sales ideas." This resolution was approved and referred to the conference committee for development.

FEDERAL AID FOR WATER SYSTEMS

The New York State Association secured approval of its resolution calling upon the federal government through the Reconstruction Finance Corporation to assist the construction and installation of water supply systems and sewage disposal plants in those community centers where such facilities are inadequate. These projects would be self-supporting and self-liquidating and would aid in relieving unemployment. The new administration was instructed to take immediate action in putting this suggestion before the government. The tenth resolution covered a duplicate suggestion.

A Philadelphia suggestion for a more permanent membership sign was not followed because of the expense involved.

The twelfth resolution aroused considerable debate. The New York state group proposed giving the national board of directors authority to select the city for the national convention, because it could better determine the adequacy of the facilities offered. The majority of the resolutions committee favored the suggestion. J. E.



Edward Frank, newly appointed secretary of the National Association

Berger of Bridgeport, Conn., opposed it because the present plan of having the convention select the city helped to keep the delegates and members interested in national affairs. If the delegates surrendered this power, valuable enthusiasm would be lost. National officers

could discourage in advance those cities who did not understand the magnitude of the job of preparing for a national meeting.

Frank B. Lasette saw no reason for a change, as the present method has been working satisfactorily. Vice President Kleine argued against the change as he saw no need for further centralization of power. The board now has the power to change the city if necessary. The resolution was defeated.

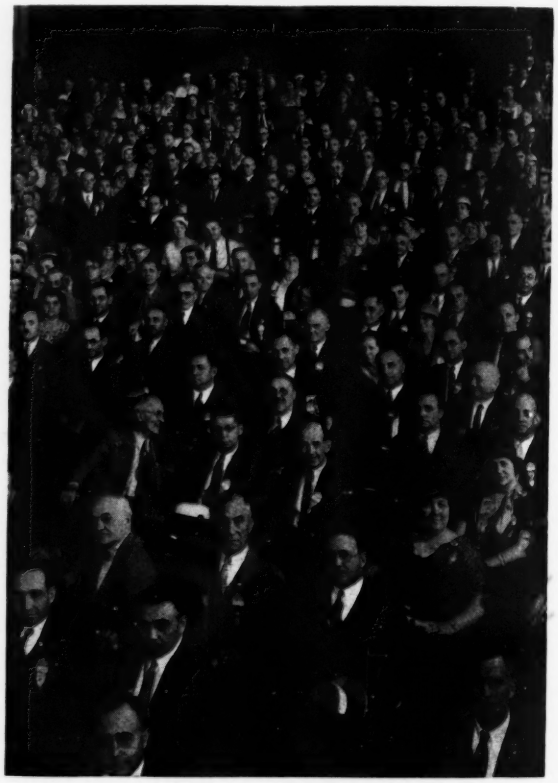
A resolution approved called attention to the growth of interest in air conditioning and to the fact that the use of waste and supply connections made the plumbing and heating dealer best qualified to handle such installations.

Kansas City, Mo., asked that all wholesalers put into effect the automatic "arrears list" in order to stop the unwholesome extensions of credit which have injured the responsible contractor, have piled up bad accounts for the wholesaler and brought inefficient installations to the public. President Donoghue pointed out that the National association had been advocating better credit practices. Sympathy was expressed with this resolution but it was decided that state and local associations should handle the credit question.

The Montclair-Bloomfield, N. J., association suggested changing the almost 50-year old National motto from "They Builded Better Than They Knew" to "We Build for Better As We Grow" or a similar slogan of present-day application. W. J. Flynn of New York, W. F. Mylander of Baltimore and others opposed the change as a break with an honorable and inspiring tradition. President Henry J. Williamson of the Montclair-Bloomfield association urged the need of change to make the National slogan of value today. The final vote was against changing the motto.

The sixteenth resolution, which called attention to unfavorable publicity, resulted in the national officers being instructed to write to the general press condemning the use of cartoons and editorials belittling the master plumber.

Concurrence was given to a New Jersey state suggestion that all state associations be notified of the action taken on resolutions at the National convention.



Groups of the delegates and guests who crowded Madison Square Garden for the golden anniversary convention of the National Association of Master Plumbers

WANT HEALTH AUTHORITIES TO SUPERVISE PLUMBING

Also approval met another New Jersey state suggestion. This pointed out that national advertising had created a public demand but had failed to point out the many advantages to the public in buying from qualified plumbing and heating contractors. The incoming board was instructed to seek a conference with manufacturers who advertise nationally to have such advertisements point out the advantage to the public of dealing with qualified contractors and to point out that quality in-

They Made Money

with *Burnham*

Air and Vacuum Valves

THE past heating season must have proven very profitable for those contractors and wholesalers who installed and sold Burnham Air and Vacuum Valves, because they reordered time and again.

This coming season will be even more profitable for Burnham dealers, because after a whole heating season Burnham Air and Vacuum Valves have lived up to every claim we made for them and many more of them will be bought.

Burnham Air and Vacuum Valves are popularly priced and comprise a complete line for every use.

Concentration on the Burnham line guarantees profits.

Your name on the coupon below will bring literature and prices.

Our proposition to reliable wholesalers is particularly attractive. Write for details.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in All Principal Cities of the United States and Canada

MAIL THIS COUPON FOR LITERATURE AND PRICES

BURNHAM BOILER CORP.
Irvington, N. Y.

Send me full information and prices on Burnham Air and Vacuum Valves, advertised in Domestic Engineering.

Name.....

Address.....

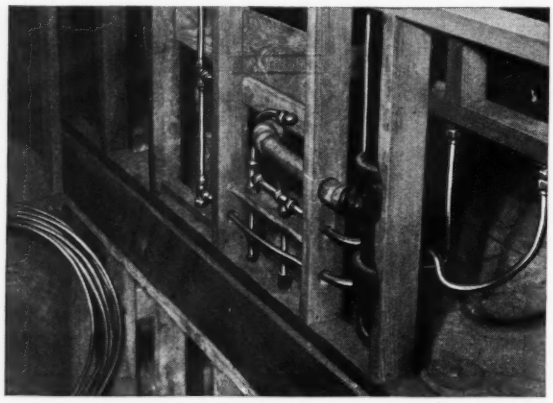
Swing those Jobs . . .

with

PR PIPE

(PAUL REVERE PIPE)

In replacement jobs, the plumbing cost is practically the entire cost . . . if PR Pipe is used. No wholesale ripping up of walls, floors, etc. Notice how the journeyman plumber can "snake" long lengths of this pipe in narrow, restricted spaces.



Notice the smooth bends in this photo of a concealed portion of a PR Piping System. Notice how few fittings are needed . . . also that they are all compression joints, which means they are permanently tight. See how simple the piping is.

How? Simply by doing this: whenever asked to bid on rustable pipe, bid as requested *. . . but in addition submit a bid on PR Pipe.*

Owners are quick to realize the many advantages of P R Pipe . . . quick to take advantage of the fact that the extra cost involved is so *small.*

Does it work? Why, it's working every day! It's working with Ithaca Plumbing and Heating Co., Ithaca, N. Y., with James T. Williams, Utica, N. Y., with scores of plumbing contractors. As a newer, better piping system, P R Pipe will not only swing jobs your way . . . but will help you make bigger profits as well. Plumbing contractors who bid on P R Pipe are benefiting . . . why don't you?

✣ ✣ ✣

PR Pipe is 99.9% pure copper, completely deoxidized and having a gun-barrel inside finish, free from flaws. It is rust-proof, and has the effective thickness of S. P. S. (standard pipe size) pipe. It can be used with all standard compression or solder fittings.

It comes in two tempers: Soft, for concealed and replacement work and services (see illustrations for the advantages of P R Pipe Soft Temper); Hard, for new work and exposed runs.

It will pay you to find out all about P R Pipe. Also about Revere Brass Pipe. For information address Revere Copper and Brass Incorporated, 230 Park Ave., New York City.

Revere Copper *and* Brass

INCORPORATED

PR PIPE

Baltimore *Division, Baltimore, Md.* Michigan *Division, Detroit, Mich.* Higgins *Division, Detroit, Mich.*
Dallas *Division, Chicago, Ill.* Taunton-New Bedford *Division, Taunton, Mass.* Rome *Division, Rome, N. Y.*

EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N. Y.

The last gasp...

BACK IN THE NINETIES

The gas chandeliers . . . the elaborate frames and screens . . . the crowded furnishings . . . these were modern . . . once. In such a room, so full of furniture, an exposed radiator would not have been particularly objectionable.

Exposed radiators were modern . . . once! But today, the tasteful simplicity of modern homes calls for concealed heating with convectors.*

Don't run the risk of having your work classed as old-fashioned in a year or two. Install Rome Convectors.

Rome has designed convectors and Complete Units (consisting of convectors and enclosures) to meet every modern construction need. Moreover, Rome has standardized them not only as to types and sizes, but also as to methods of installation.

For these reasons, Rome Convectors are readily selected from 21 convenient sizes. They are all easy to install. They are not sold on price. *They are profitable to handle.*

GREATER HEATING CAPACITY . . . LESS SPACE

Besides being *modern,* remember that Rome Convectors are built up to a high standard and not down to a price. They can be counted on for life-long service. They have maximum effectiveness because of the use of copper with its high conductivity . . . the highest of any commercially available metal. This results also in compactness . . . an important item in all modern construction.

ROCOP and ROBRAS Convectors are fully described and illustrated in two Rome Bulletins. Other data included: tables of capacities and weights, dimension diagrams, methods of installation, etc. Rome will be glad to mail you copies.

**The A.S.H.V.E. Guide defines CONVECTOR as "a heater which is enclosed in a duct or cabinet and which gives off heat to an air stream, which passes into a room which is to be heated." Rome Radiation Company, therefore, gives the name Convector to its concealed heating units . . . ROCOP and ROBRAS.*

WANTED . . . Agents of good character and ability to represent Rome Convectors in territories still open. Inquiries invited.

Rome Radiation Company

DIVISION OF

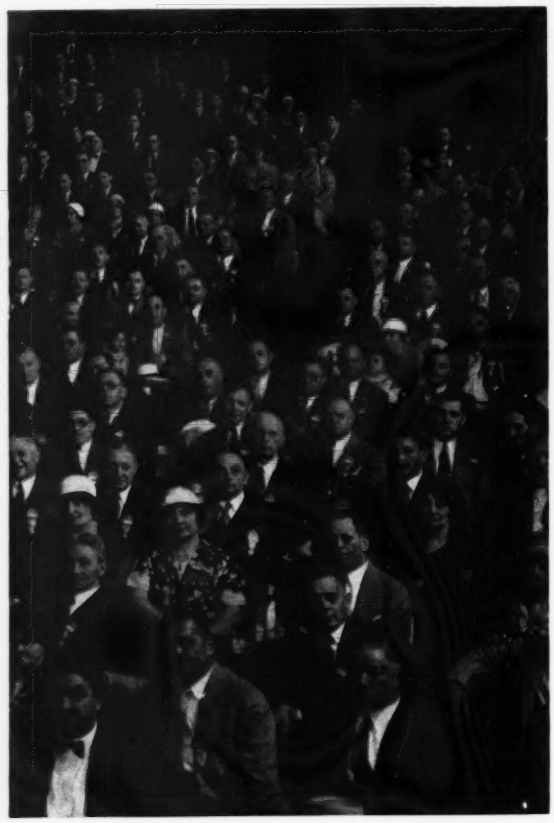
Revere Copper *and* Brass Incorporated

ROME, N. Y.

stallation is just as necessary as quality equipment.

The nineteenth resolution, coming also from New Jersey, recorded the National association as favoring the placing of plumbing in all states under the supervision of state and local health authorities and urging the National to help state and local associations in securing such a procedure. This resolution was approved.

New Jersey had recorded its belief that installment



Another group of the hundreds who attended the national convention of the master plumbers at New York

selling, especially in larger communities, has sometimes operated to destroy plumbing standards and to foster sharp practices which the established plumbing and heating dealer, interested in satisfactory installations, would not use. It advocated the abolition of time selling of plumbing and heating equipment. The convention recorded agreement with the sentiment as to the weaknesses of time selling but did not favor its elimination.

Manufacturers of all water heaters were requested to put serial numbers on their products. Such numbers are helpful in settling controversies over the payment of commissions and in tracing the source of some particular sale.

The next resolution referred to the separation of mechanical from general contracts and led to the sending of an approving telegram to the chairman of the committee on public grounds and buildings of the house of representatives.

The 23rd resolution came in with the endorsement of the Chicago association. It recited the leading part played by the master plumber in securing advances in sanitary science and the elimination of water-borne diseases, the market thus created for manufacturers of plumbing products, the inroads now being made by those not interested in satisfactory installation and the need for further research. It recommended that manufacturers set up and maintain for at least three years a research bureau to carry on bacteriological studies to secure further advancement in the science of sanitation. The resolutions committee felt the amount of money involved made the project prohibitive now and the resolution was defeated.

CONDEMN FEES FOR BIDDING

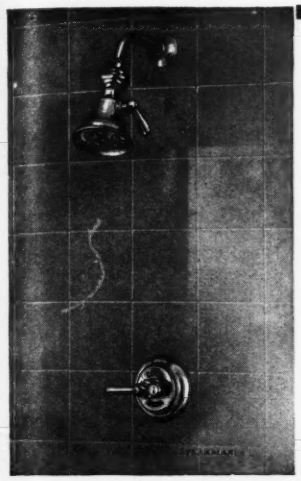
The Canton, O., association, brought in a resolution which after some changes was approved. It drew attention to the practice of architects in asking for a deposit for the safe return of plans and specifications given to general or sub-contractors. Approval is given to this practice but disapproval is recorded for the practice of charging a fee for the privilege of estimating. The American Institute of Architects is to be asked to cooperate in eliminating the latter evil.

The Illinois delegation likewise opposed the practice of certain architects and builders in charging for the privilege of figuring work, a practice which opens the opportunity to obtain money from plumbing contractors for plans which may never mature. The resolution puts the National association on record as unequivocally condemning "the practice of charging a fee for plumbing plans or blue prints by architects or builders. Both of these resolutions were approved.

Discussion on this resolution brought out comments that some plumbing contractors have been asked to make deposits for plans and specifications, later to have part or all of the deposit retained. Others stated that the American Institute of Architects was not at all in sympathy with such a practice. Those who spoke included J. E. Berger of Bridgeport, Conn., William H. Grabowsky of Canton, O., President P. W. Donoghue, Wm. J. Flynn of New York and R. J. Weber of Chicago.

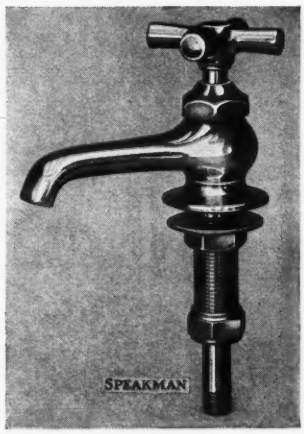
Another resolution was similar to the previous one on credit and was therefore tabled. The resolution requesting the elimination of the wholesaler is discussed on Page 68.

The final one came from Connecticut and called attention to the unrest among home owners based upon calls from financing companies to amortize home mortgages and also the fear that improvements would mean higher taxes. The resolution puts the National association on record as favoring the suspension of amortizing mortgages for two years with improvements made to keep up the value of such property not to be met by increased tax valuations. State and local associations were urged to work with local groups in the building field to secure such action. Approval was given after opposing talks by Delegate Robertson of Beverly, Mass. and W. F. Mylander of Baltimore and favoring discussions by J. E. Berger and R. T. Rock, both of Bridgeport, Conn.



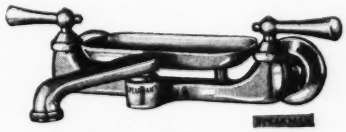
K-2601-M — SPEAKMAN Built-in Mixometer Shower. Size 1/2 inch. Mixometer with metal wall plate and metal handle. Bent arm with heavy metal wall flange and Anystream Self-Cleaning Head K-3395.

AFTER ALL THERE'S PLEASURE AND PROFIT TOO IN INSTALLING QUALITY FIXTURES—THE SPEAKMAN KIND . . .

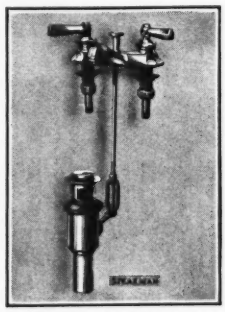


K-6785—SPEAKMAN Basin Faucet with 4-arm metal handle.

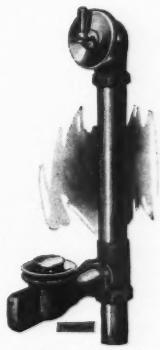
K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head. Pat. Jan 2, 1923, and Nov. 3, 1931.



K-5503-M—SPEAKMAN Grace-line Sink Fixture (Design Patented).



K-5057 — SPEAKMAN Center-set lavatory fixture which gives extra shelf space on lavatory. Inlets 4 in. centers. A variety of lavatories are now punched to suit these fixtures.



K-4656—SPEAKMAN Act-Easy Pop-up Bath Waste.

NO matter how business is generally there's always a market for quality showers and fixtures, for *everybody* is *not* buying on *price* alone.

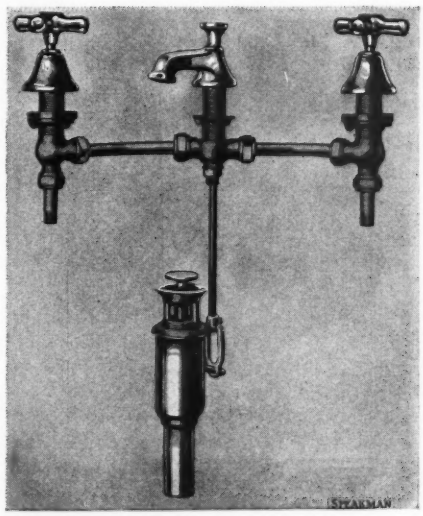
For this reason we suggest that you push the *Speakman* line. You know the valves are made with easily renewable seats and washers are swivel disc, encased. The brass is electrically melted in modern furnaces, which insures an even mixture of the component parts of the brass. Only the best grade of metal is used and all parts are extra heavy.

Then there is Speakman chromium plate which has proven that it will last indefinitely.

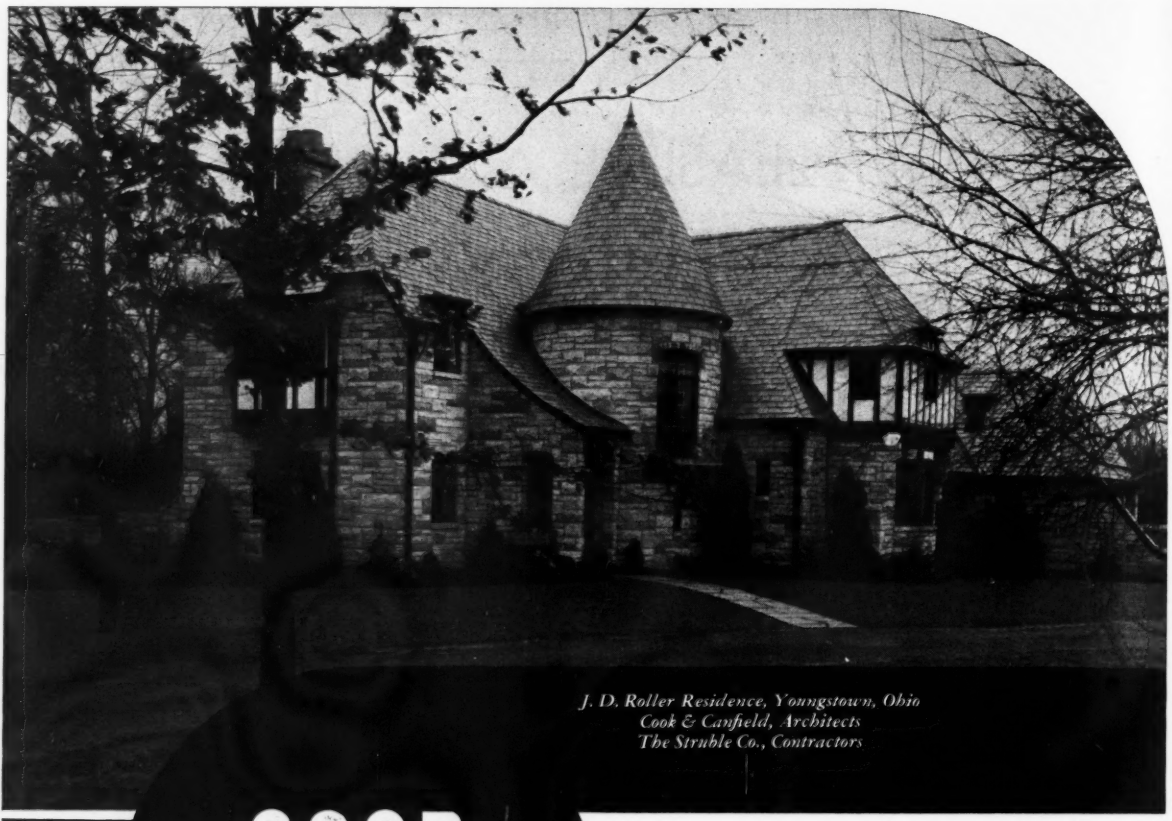
You've been proud of every one of your jobs when you installed Speakman Showers and Fixtures, and so has your customer. That's why we say continue to sell *quality*—sell the Speakman Line.

SPEAKMAN COMPANY
• Wilmington, Delaware •

SPEAKMAN
SHOWERS & FIXTURES



K-5010—SPEAKMAN Metaline Unit-Acto Lavatory Fixture.



J. D. Roller Residence, Youngstown, Ohio
Cook & Canfield, Architects
The Struble Co., Contractors

GOOD AS IT IS *Beautiful*

Good taste and good sense were combined to make the Youngstown home of J. D. Roller a gem of residential architecture.

The use of Toncan Iron Pipe in plumbing and heating systems in any building is an expression of good sense, and of a good sense of values. Among the ferrous metals, this modern alloy of refined iron, copper and molybdenum stands first after stainless steel in its resistance to corrosion. Consequently, it lasts longer, minimizes replacements and costs less during each year of its trouble-free life.

In the field of larger construction, Toncan Iron Pipe is acknowledged superior where service conditions are severe. More than seven miles were used in plumbing the Sterick Building, Memphis. Carew Tower, Cincinnati, and the Fisher Building, Detroit, used it for steam return lines. The new Edison Building, Los Angeles, used it for the air, gas and cooking piping. Milwaukee Gas Light Company Building employed it for vents.

Write for a copy of "Pipe for Permanence"—64 pages of information pointing the way to increased satisfaction and lower ultimate cost of building piping systems.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES . . . YOUNGSTOWN, OHIO

I consider the Cincinnati Survey one of the most constructive pieces of work that has ever been undertaken by your National Association. It contains what is probably the only accurate and complete compilation of data that we have on plumbing distribution in any city in the United States. It has dispelled our fears of the terrible inroads that we were told had been made by the D T U companies. It assisted us in our deliberations by having before us constantly facts concerning distribution in our industries. And finally, it proved quite conclusively that the sensible and economical method for the distribution of plumbing products is via the route of manufacturer to wholesaler to contractor, and that the greatest contributing force to the upholding of that method is your National Association of Master Plumbers.—*From the annual report of President P. W. Donoghue.*

Marketing Facts Revealed in Cincinnati Plumbing Survey

Joseph G. Hildebrand

I HAVE made brief reference to the origin of the National Association of Master Plumbers and the fact that it is now celebrating its fiftieth year of accomplishment, as a tribute to its leadership. Another contributor to the force which has expanded it from its humble origin of 125 men to the now vast association of 10,000 members has been the progressiveness of its action and the detail of individual accomplishments. Notable among these, during the present administration, has been the sponsorship of the Cincinnati survey.

FACTS WERE MISSING

To give just a bit of background to the Cincinnati survey—for some years prior to the making of the survey our industry seemed to be rampant with rumors concerning the direct-to-you. Misinformed master plumbers in our urban communities were making exaggerated statements concerning the vast inroads of direct-to-you companies. Sales representatives of the wholesalers, and some executives as well, were even expanding the plumbers' opinions and using this as an apology to justify their own action in selling direct to the consumer. Manufacturers of our industry, seemingly, were even more paradoxical in their predictions than the wholesalers and the master plumbers. On the one hand, one group of manufacturers were decrying the direct-to-you houses and claiming that their sales were only 1/10th of the industry's volume, while on the other hand some manufacturers were touring the country in an investigation of this subject and freely stating that the total direct-to-you business in the industry was from 50 to 66 2/3rds per cent of the industry's volume.

All through this hysteria, the industry lacked definite figures on the distribution of plumbing material, both as a whole or even in part, in a given community.

After several informal discussions by prominent people in the industry and particularly in view of the fact that there was such a wide variation of opinions concerning the growth of the direct-to-you companies, the National Association, ever alert to the needs of the industry, decided to sponsor a complete survey of the distribution in an average city. Following this decision, the city of Cincinnati, Ohio, was selected, because of the general, expressed opinion of leading manufacturers and wholesalers that Cincinnati probably had a greater percentage of the DTU type of distribution than any other community of similar size. The Plumbing and Heating Industries Bureau was then employed by the National Association to conduct this inquiry.

In attempting to make this quest for the National Association, the Bureau lacked precedent to follow, because, as far as could be learned, such a research had never been made in our industry.

This report was presented at the annual convention of the National Association of Master Plumbers in New York, by Joseph G. Hildebrand, secretary-manager of the Plumbing and Heating Industries Bureau.

It was estimated that the task was possibly a four weeks' job for an investigator. A member of the staff of the Bureau was, therefore, selected and immediately dispatched to Cincinnati in the middle of August, 1931. The work of collecting and compiling the information in Cincinnati then proceeded in a systematic and quiet manner.

The entire survey was conducted in a scientific and thorough way. Bureau employes, E. B. Kleine, your National Vice-President, who materially assisted in directing the investigation; George H. Drake, who was then president of the Bureau; and P. W. Donoghue, your National President—these were the only persons who were aware that the work was proceeding.

SURVEY PROVED BIG JOB

After his arrival in Cincinnati and following the securing of preliminary data, it was found by the investigator that the task in hand was substantially larger than anticipated. I will not go into details here concerning the increase in size of the organization working under the investigator, but it is sufficient to state that the inquiry consumed five weeks instead of four, and for a portion of the time there were six people working on this assignment.

Finally, upon completion of the accumulation of data and information, we next faced the task of assembling the tremendous quantity of material and statistics secured. When this work was completed, it was found that we had compiled a 40,000-word report. In addition, we had supplementary photographs, business volume tabulations, photostatic information, and a series of analytical maps and charts.

The Cincinnati Survey is divided into five parts: Part One—Greater Cincinnati As a General Market; Part Two—The Distribution of Plumbing Materials; Part Three—The Plumbing Trade; Part Four—The Local Consumer; Part Five—Appendix.

Part One describes the Cincinnati Market. Following are extracts from this section of the work:

"Covering an area of more than 50 square miles, the Cincinnati metropolitan market has a population in excess of 650,000. Total sales of local manufacturers and wholesalers in all lines in normal times are more than one billion dollars annually. There are more than 16,000 retail outlets within the metropolitan area.

"Residential areas—the residences of the 135,000 white families living within the area—are characterized by a high percentage of resident-owned homes. In this respect the market appears favorable to both modernizing and new residential construction work. 54.44 per cent of the families own the homes in which they are living, according to census data. There are approximately 80,000 dwellings within the area.

FACTS ON CINCINNATI MARKET

"The local chamber of commerce reports no feeling of hostility toward chain store merchandising. 686 such units of chains exist. They are well regarded and moderately prosperous. The city is headquarters for a number of national chains and is well covered by several local chain organizations.

"Building operations are slack, though by no means at a standstill at the present time. The value of building permits, July, 1929, to June, 1930, was $45,321,199, as compared to $31,393,660 for July, 1930 to June, 1931. Analyzed, this decrease was markedly sharper in commercial and industrial building than in residential construction. The decrease in commercial and industrial building was 60 per cent as compared with a decrease of only 12 per cent is residential construction."

From these facts, you will see that Cincinnati may be

A TWO-COLOR SALES IDEA FOR YOUR USE

ON the facing page is a new and useful editorial service for every reader of Domestic Engineering. This specially drawn, two-color advertisement carries a timely sales message of value to every dealer. On the reverse side is a duplicate advertisement as far as timeliness and value is concerned, but devoted to plumbing.

These advertisements are prepared to help the readers of Domestic Engineering. Advertising is becoming more and more the object of study by the dealer. For his purposes, he needs timely and persuasive sales messages, prepared by men who understand the plumbing and heating business. It is to help this dealer with advertising which fits his particular needs, that we have inaugurated this new editorial service.

These advertisements are drawn for us by artists who handle nationally known advertising accounts. The ideas back of the service are suggested by the editorial staff of Domestic Engineering, based upon work in the field in checking what sales messages are effective. You as a dealer will thus find in this feature the way to keep your advertising fresh and up-to-date with the added assurance that it is expertly prepared with the needs of the plumbing and heating dealer in mind.

Dealers in plumbing and heating products are using all forms of advertising. This includes direct mail, newspaper and window posters. The ideas given in this new editorial service are offered for the use of the dealer to aid him in any form of advertising which he employs. Attracting customers into your store and drawing their attention to the services you can give them, is necessary to your business growth.

The ideas on the facing and following pages are for the service of our reader.

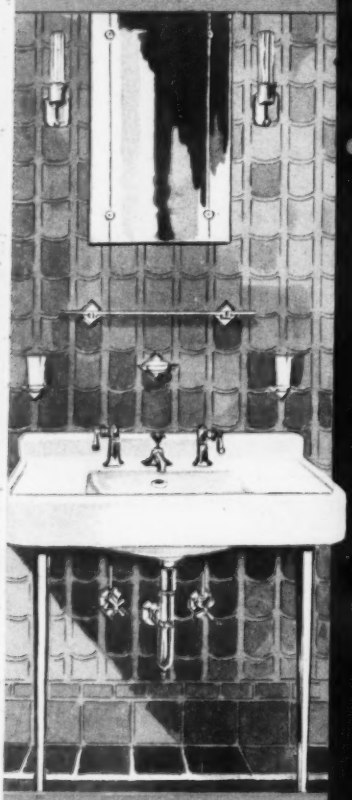
Can your young people enjoy themselves at home?

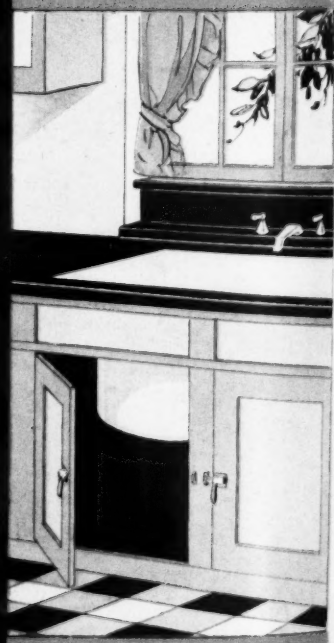
AUTOMATIC HEAT

Gives them an attractive basement recreation room

For her GREATER COMFORT

...many new plumbing devices at LOWER PRICES





regarded as an average progressive American city of slightly over a half million population.

HOW MATERIAL IS DISTRIBUTED

Part Two covers a distribution of plumbing materials. The following extracts will give a clear conception of this type of the work:

"The study is limited to plumbing materials and to the plumbing trade. All statements as to volume of materials sold involve only such materials and are not statements as to total volume of sales for all items handled by the respective houses. This should be borne in mind. All tabulations of volume are based on the calendar year of 1930.

"All information involving statements of direct-to-you volume was carefully cross checked. While these statements, in the nature of the situation, can not have the accuracy of audit analysis of the firms in question, they will not vary appreciably from audit statements.

"Information as to volume of plumbing business done in the Cincinnati area by manufacturers' branches and by independent wholesalers is based upon direct statements of the executives of these firms, with but one exception—a negligible one. No attempt was made to go behind these figures. They were obtained in confidence; hence, while the report will state the totals of independent jobber and manufacturers' branch business for the Cincinnati metropolitan area, it will not state the names of houses."

The final result of this part of the survey gives the following information: Regular wholesalers distribute to the master plumbers 68.8 per cent of the plumbing volume in this area. The sales of the direct-to-you's including the mail order houses total 27.3 per cent. Co-operatives, or a slightly irregular buying in the area, represent 3.9 per cent.

ANALYSIS OF PLUMBING TRADE

The Third Section of the report is a study of the plumbing trade. The following extracts from this section will give you a better understanding of this phase of the work:

"There are, at the present time, 383 master plumbers operating in the Cincinnati metropolitan area. This study is based upon individual analysis of the business methods of 374 masters. No information was available for the additional nine masters, these being without any regular place of business. Of these masters, 260 are licensed under the Cincinnati ordinances. The remaining 114 operate either in the Kentucky section of the Cincinnati metropolitan area, or outside the limits of the city of Cincinnati proper.

"Of the 374 contractors in the Cincinnati metropolitan area, 73 maintain showrooms in which the industry's products are displayed. 212 maintain shops independent of their places of residence, while 162 operate their businesses from their place of residence. Of contractors who operate from their residences, 27 maintain shops in their basements, 61 maintain shops in their garages, and 58 have shops in connection with dwellings but independent of either basement or garage.

"As to the type of work done, 160 of the 374 contractors in the area confine their business activity strictly to jobbing work. 166 of the 374 do business involving both jobbing and new work. Of these first two groupings—mainly in the latter group as the detail of tabulation will show—47 contractors place considerable emphasis upon remodeling work. 28 of the 374 contractors emphasize new residential and commercial work to the exclusion of other types of business. Eight are in the class termed operators. This class is restricted, in the interpretation of types of work, to contractors or firms fully capable of handling work of major size, and accustomed to devoting a large share of their activity to that work.

Past President George H. Drake, Who Aided in Securing Facts

"Study of the credit of Cincinnati metropolitan area contractors was systematic, each contractor's standing being checked four ways. The study showed that 205 of the 374 contractors in the area are considered good credit risks within the usual scope of their activity. These are contractors whose names have not appeared on the local cash list within the past six months or have been considered shaky risks during 1930. 91 of the 374 contractors in the area are considered doubtful risks within the usual scope of their activity. The names of these contractors have been alternately on and off the local lists during the past six months and in 1930. These accounts, when off the list, are regarded with caution even though, in some cases, the account seems to have a financial standing outside his regular business activities which would indicate the soundness of his credit. 73 of the 374 contractors in the area are considered bad risks. These names appear constantly on cash lists, and local sources of supply sell them only on a cash basis—with some exceptions which your investigator was unable to analyze.

"Of the 374 contractors in the Cincinnati metropolitan area, 228 buy exclusively from the traditionally regular sources of supply."

HOW ASSOCIATION MEMBERS OPERATE

The following figures concerning the, at that time, 80 members of the Cincinnati Association emphasize the value of good organization. Of these 80 men in the Cincinnati Association, 21 do jobbing work; 16 specialize

Another Group of Delegates Who Made Up Large Attendance at the New York Convention of the National Association of Master Plumbers.

in repair work; 41 do jobbing and new work; 12 entirely confine their efforts to new work; and six may be grouped as operation contractors.

As concerns the credit of these 80 men: 63 are entirely o. k.; 15 are occasionally delinquent, and but two of them are consistently on the wholesalers' cash lists. As to the buying of these men—95 per cent are consistently loyal to established wholesalers. As to the matter of installation—75 of the men entirely confine themselves to the installation of material they sell, and but four of them install any material sold by the direct-to-you and mail order companies.

An investigation of the books of these 80 men showed that 70 of them are maintaining a bookkeeping system that could be rated as good or fair. There were only five of them who seemed to have their books in bad shape.

The survey further disclosed, with reference to the contractors, that there are 87 of the total of 374 plumbing contractors in this area, who consistently, not only install material sold by DTU companies, but who also confine their purchases almost entirely to the DTU houses. Of these 87 there are 46 who are consistently on the cash list of the local wholesalers, and 20 more who are there the majority of the time. All of these men are small operators. It is interesting, in this connection, to note that there are 19 of these 87 men whose books are in very poor condition, and there are also 27 more who maintain no books whatever.

Another interesting angle to this study of the plumbing trade is the fact that 65 per cent of all the plumbing goods sold in the Cincinnati area is purchased by the 80 members of the association. This is the figure shown in the survey, covering the year of 1930. A more recent tabulation shows that the volume of material purchased by the members of the association from April 1, 1931, to April 1, 1932, is 69¾ per cent, or an increase of almost 5 per cent over the figures of a year ago.

WHAT THE CONSUMERS WANT

Part Four of the survey covers a study of the consumer. This angle of the survey is a very important one, as it gives a suggestion of the potential market for the products of our industry.

In an effort to get accurate consumer reaction, we canvassed 324 families from five different sections, which might represent five income levels of the city. Of these calls, 276 were made upon the housewife and the balance upon the husband.

The average size of each of these families was four persons. In these 324 homes there were found to be 379 bathrooms. Other equipment of our industry found in these homes included an extra lavatory in 76 of the homes; a modern gas water heater in 297 of them, and 276 of the homes had kitchen sinks of a new style type.

Approximately the same number of families owned a radio as well as a modern gas water heater, 265 to be exact. A bathroom was about twice as popular as an automobile or an electric washing machine. The families owning an electric washing machine numbered 148, as compared to the 379 bathrooms belonging to the 324 homes. Automobiles were owned by 162 families.

Inquiry was made of each family concerning the general satisfaction that was enjoyed from their present plumbing and heating equipment. This response that it was entirely satisfactory was received from 304. Seven families reported that their equipment was unsatisfactory and then refused to answer.

REGARD PRICES AS REASONABLE

The reaction of these families as to plumbing and heating prices was very carefully checked. They were asked first how they felt concerning the prices of repairs. 56 per cent thought they were reasonable, and 44 per cent found them high. Following this, they were asked their opinion on the price of plumbing fixtures. Strange as it may seem, 89 per cent reported that they thought fixture

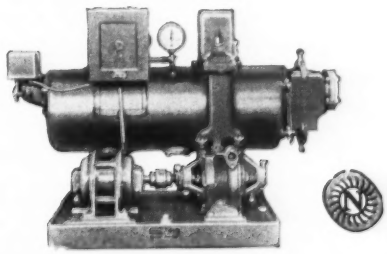
Mark Twain's famous Steamboat always stopped when the whistle was blown!

THAT steamboat lacked "simultaneous capacity." And that is a very important phrase in the heating pump business. When you buy a heating pump be sure that its rated air and water capacity is *simultaneous* capacity; that it will deliver its full rated volume in *both* air and water *at one and the same time*, in a single minute. This point makes a tremendous difference in the ability of the pump to handle the job, and a greater difference in your power bill.

Jennings Pumps are always rated for simultaneous capacity, and any Jennings Pump will deliver its full rated capacity of *both* air and water at the same time.

If you buy your heating pump on the basis of minimum power consumption, and a definite simultaneous air and water capacity, a Jennings Pump can always be bought for a lower first cost, and operated at a lower cost. A Jennings installation offers you the utmost in heating pump value.

VACUUM HEATING PUMPS
CONDENSATION PUMPS
SUCTION SUMP PUMPS
SUCTION SEWAGE PUMPS
SEWAGE EJECTORS
HOUSE SERVICE PUMPS
CENTRIFUGAL PUMPS



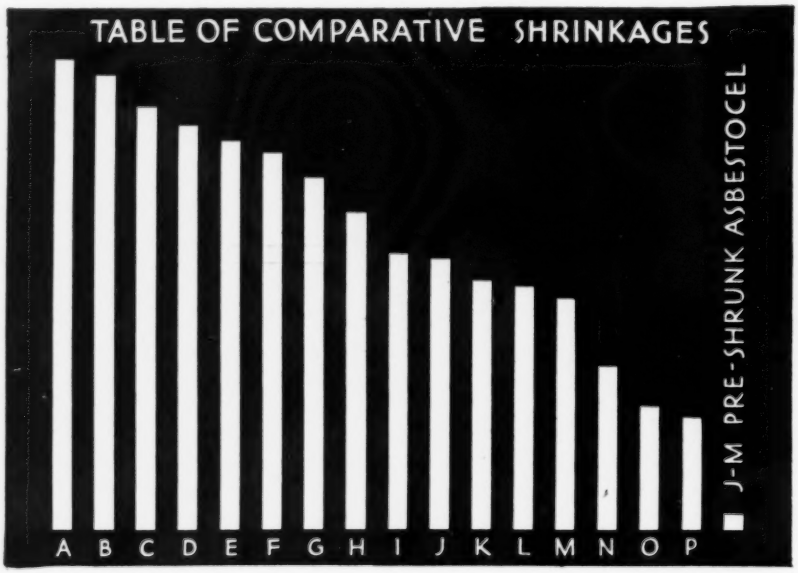
Jennings Pumps

THE NASH ENGINEERING CO 41 WILSON ROAD, SOUTH NORWALK CONN.

Announcing..J-M

THE END OF ALL *OBJECTIONABLE* SHRINKAGE

Most important improvement in cellular pipe covering since the invention of Improved Asbestocel itself in 1921..yet it costs no more!



IN EXHAUSTIVE LABORATORY TESTS, engineers compared 16 leading brands of cellular coverings with J-M Pre-Shrunk Asbestocel — under conditions comparable to service in the field . . . proved that the *average* shrinkage for the 16 brands was 21.3 *times as much* as for Pre-Shrunk Asbestocel.

ELEVEN years ago J-M engineers developed Improved Asbestocel—the most significant advance in cellular pipe covering up to that time . . . long-lasting, efficient, economical.

You have proved its merits in actual use . . . found in it only *one* shortcoming . . . a defect inherent in *all* cellular pipe coverings . . . a defect you *had* to take for granted.

That defect was *shrinkage*. To *hide* the gaps it caused—we all resorted to a makeshift—you as appliers, we as manufacturers. The defect was covered with canvas.

But the makeshift didn't *eliminate* shrinkage . . . failed time and again even to hide the bad appearing open breaks . . . and the canvas in no way reduced the loss in insulating efficiency caused by the shrinkage gaps.

But now, after five years of work, our engineers have developed a radically new improvement in cellular pipe covering that under the severest tests shows no objectionable shrinkage . . . no unsightly gaps . . . causes no profitless repair calls.

This new pipe covering is J-M *Pre-Shrunk* Asbestocel.

J-M Pre-Shrunk, in the familiar canvas-covered type, not only incorporates all the features of our famous product, Improved Asbestocel, but has the additional advantage—the elimination of objectionable shrinkage . . . ***and yet, costs no more.***

Why Pre-Shrunk Asbestocel ends shrinkage troubles

Ordinary cellular pipe covering always shrinks — Why? Because ordinary Asbestos paper absorbs moisture while in stock or during installation. The pipe covering expands. When heat is turned on, this covering dries out . . . shrinks . . . sections pull apart at the joints . . . gaps give the job a bad appearance.

Because Pre-Shrunk Asbestocel is made from *waterproofed* paper, the cause of shrinkage is removed. It will retain its original size without alteration. Look at these test pictures at the right. Note how ordinary asbestos paper soaks up water like a blotter while none penetrates the *waterproofed* Pre-Shrunk sample.

"Pre-Shrunk" ASBESTOCEL

STOP WATCH TEST PROVES 35.2% REDUCTION IN APPLICATION TIME POSSIBLE

On May 17th at the Commodore Hotel, New York, 22 leading contractors and supply men witnessed speed test of Pre-Shrunk Asbestocel—High-speed type.

A typical applier who had never seen High-speed Pre-Shrunk Asbestocel until a few minutes before the test, was given two identical lengths of pipe to cover.

Checked by the judges' watches it took him 10 minutes, 23 seconds to do the job with the canvas-covered type . . . 6 minutes and 45 seconds with High-speed "Non-canvas" Pre-Shrunk Asbestocel . . . a time-saving of 35.2%.

And now . . . for the first time . . . a covering without canvas *that is practical and safe to use!*

OBJECTIONABLE shrinkage has been eliminated! So now Johns-Manville announces the first covering *without canvas* that is safe and practical to use—J-M Pre-Shrunk Asbestocel, non-canvas type. Requires no pasting, slips easily over the pipe like an open book, clinches on tight, with simple, quick fastening staples.

How this High-speed Pre-Shrunk Asbestocel will reduce your labor costs, make increased profits possible was dramatically demonstrated at a recent test made at the Commodore Hotel on May 17th. (The details of this test are explained at the right.) Translate the 35.2% time-saving this test demonstrated into dollars on each job you do and the savings will soon mount into money.

Yet in its serviceable asbestos finish, this High-speed Pre-Shrunk Asbestocel costs you no more than the canvas-covered type.

High-speed Pre-Shrunk Asbestocel is also available in an aluminum finish. When completed with its black decorative bands, it makes an exceptionally handsome job at very little added cost.

Today it's mighty hard to get business that leaves you a worth-while margin. Quality work will do it.

Pre-Shrunk Asbestocel in any of its three types assures 100% satisfaction on every job you do. Gives you the edge on competition that 1932 conditions make more vital than ever before.

* * *

J-M Pre-Shrunk Asbestocel is now stocked by your nearest Johns-Manville Distributor. Available in the traditional canvas-covered type and in the non-canvas type, the latter in Aluminum Finish and Asbestos Finish as desired. For full particulars, see your distributor or write Johns-Manville, 292 Madison Ave., N. Y. C.

"PRE-SHRUNK" HAS 6 POINTS OF SUPERIORITY

1. *No objectionable shrinkage.*
2. *It is cross-corrugated.* 8 cross-corrugations in each 3-foot section.
3. *It is accurately round*—to make a neat finished job and a perfect fit.
4. *It is hard*—withstands excessive handling and hard knocks—retains its original roundness.
5. *It is uniform.* Every piece gives the same dependable service.
6. *It closes like a book.* Special hinged breaker strip provides a perfect fit. Keep edges always in alignment.

JOHNS-MANVILLE PRODUCTS

Johns-Manville
Pre-Shrunk
ASBESTOCEL

CAPITOL 914 SINK FIXTURE

For the moderate priced home, where costs are a vital factor, this Capitol 914 Sink Fixture presents a neat, dressed-up appearance and at a very reasonable price.

Nickel plated, the handles and soap dish are of china. Metal handles and metal soap dish can be supplied at slightly increased cost. With drain at rear, the soap dish sets well down between the handles on a short, securely fastened stud. 8 inch centers with female eccentric or male adjustable couplings.

A true Capitol fixture throughout, it is a remarkable value. Workmanship equals that of our highest priced sink fixtures.

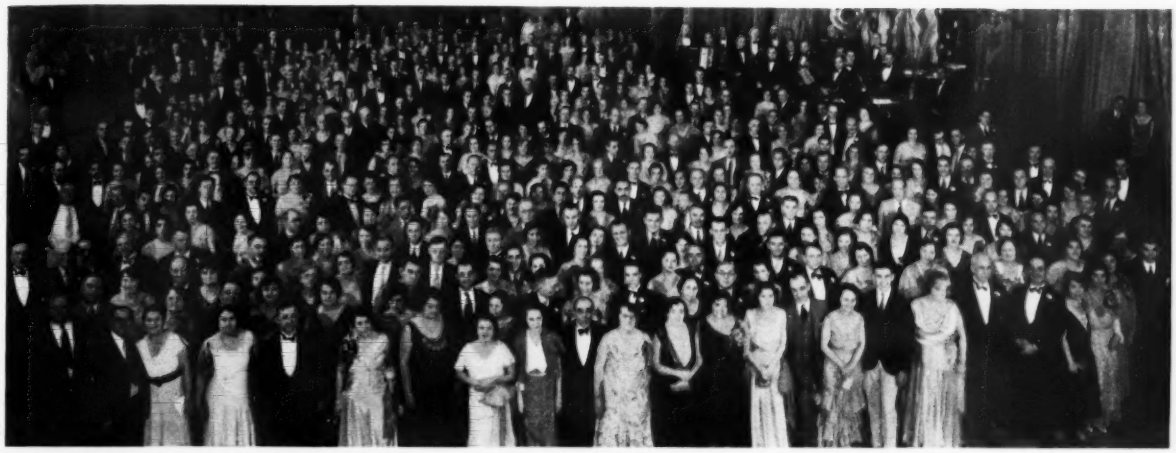
The complete line of Capitol plumbing fixtures is handled by the leading plumbing supply houses. Install them and insure customer satisfaction.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN



Delegates, Wives and Guests Crowded the Hotel Pennsylvania Ballroom for the President's Ball

prices reasonable, while only 11 per cent reported they thought fixture prices were high.

An endeavor was also made to get the reactions of these families concerning their opinions of plumbers. A favorable opinion was reported by 66 per cent; an unfavorable one by only 3 per cent. The remaining 31 per cent refused to answer.

To check the standing of direct-to-you merchandise, a careful check-up was made to discover whether or not these families had purchased plumbing or heating material from such houses. The result disclosed the fact that 27, or 1/12th, of the 324 families had bought from such sources.

BUYERS FROM DTU HOUSES

All of the families were questioned regarding their disposition to buy from direct-to-you firms. The point was whether or not they would buy plumbing and heating material from a direct-to-you firm in the event that they had requirements in our line. The answer was 66 of the 324 families were favorably disposed to the DTU houses.

Another interesting question put to each family was "Do you have a family plumber, whom you call regularly when you need him?" The answers to this proved that in Cincinnati the family plumber is regarded upon about the same basis as the family doctor—a home necessity. The results were overwhelmingly in favor of a regular plumber—76 per cent of the families reporting that they had one.

The age of plumbing equipment in the 324 homes was carefully investigated and anlyzed. It was found that 43 per cent of the homes had plumbing less than ten years old; 46 per cent from 11 to 20 years old; 7 per cent from 21 to 30 years old, and 3 per cent over 30 years. In other words, the greater number of the homes were equipped with plumbing equipment that was modern about the time of the World War, or before the advent of color, chromium, and acid-resisting ware.

In amplifying the various sections of the consumer study, special attention was naturally given to the 27 homes which bought from direct-to-you companies. In these 27 homes there were 32 bathrooms. This shows a trifle higher average than in the complete group. All the homes had a modern gas water heater, but only 77 per cent had modern sinks as compared to 85 per cent for the entire area surveyed. The percentage of radio, washing machine and automobile ownership was practically the same in these 27 homes as the entire group.

Tabulation of price reaction indicated that in these 27 homes—where the plumbing material purchased is of a general inferior quality—a greater per cent thought repair prices were high. Only 39 per cent thought repair prices were reasonable.

The reaction of the 27 DTU buyers to plumbing fixture prices was that 78 per cent agreed that prices were reasonable, while only 22 per cent thought they were high.

Their opinion of plumbers was slightly lower than the opinion of the entire group. It was interesting to note that 23 reported that, if they had any plumbing material to buy again in the future, they would continue to purchase from direct-to-you houses. The percentages of the number of people who had a regular plumber were practically the same as for the entire group.

It is also interesting to note the figures in connection with the 66 of the 324 families who stated that they were direct-to-you disposed; that is; who would buy from direct-to-you houses in the future, if occasion demanded plumbing and heating purchases. The age of the sanitary equipment in these homes is practically the same as for the entire group. The homes of 52 enjoy a radio, 43 have a washing machine, and 33 have automobiles.

MANY FAVOR DIRECT BUYING

Of the 66, 92 per cent claimed saitsfaction with their present equipment. Tabulation of repairs discloses that 45 per cent thought they were reasonable, while 55 per cent thought they were high. Fixture prices were termed reasonable by 82 per cent, while only 18 per cent thought they were high. Questioned concerning their opinion of the plumbers, 50 per cent held a good opinion, eight per cent an unfavorable one, and 42 per cent declined to give an answer. Of these 66 families, 22 had previously

purchased from direct-to-you houses. It is interesting to note that 53 per cent of these 66 families have a regular plumber as compared with 76 per cent for the entire 224 homes.

These figures, of course, require rather an intensive study to grasp their full significance. However, I do believe, in brief, that they demonstrate quite definitely that a substantial number of the consuming public is direct-to-you minded and, if occasion requires, would purchase their plumbing and heating materials from direct-to-you houses. The extensive advertising of the direct-to-you houses in the city of the survey would tend to explain in some measure the reason for this disposition to DTU materials.

SHOWS REMODELING MARKET

A very interesting and optimistic observation apparent from the consumer survey is that Cincinnati seems to be an excellent market for the modernization of plumbing equipment.

The fact that such a high percentage of the families surveyed—304 out of the 324—thought their more than 10-year old plumbing equipment was o. k. shows that the plumbing industry has an adequate field for its remodeling story. The fact that these families represented a more or less average group for their apparent income levels throughout the country indicates that this situation—the modernizing field—is not restricted to the city of the survey.

There are two ways to reach these 304 families. One is through advertising of special products and particular makes of fixtures in the local newspapers by local interests. The other is through publicity of an educational and instructive nature, which serves to tell the possible prospect what is new and modern, and to cause them to be dissatisfied with their present equipment. The combination of these two effective selling forces brings the best results.

As a passing thought, let me emphasize that education of the prospect to the advantages of your merchandise and products is the first step in the selling process. Accurate, comprehensive and timely publicity is an efficient factor.

NEED OF ADVERTISING

There are many interesting observations that can be made from this study, as a whole, but time does not permit of them. Chief amongst these, however, and one to which I especially call your attention—is the fact that the direct-to-you and mail order companies are consistent advertisers in the newspapers. To give a better understanding of this, I now quote the lineage that was used by just one of these companies—43,879 (lineage basis) in just seven months. During this period, there was practically no advertising by the regular plumbing contractors, wholesalers, or manufacturers of Cincinnati.

In checking the effect of this newspaper advertising by DTU companies, it seems that this has substantial bearing upon the consumer. The average man reads the newspaper. He believes it to a very high degree, and depends upon it for his opinions—politically, socially and economically. From it, he gets his incentive to buy what he wants—because his newspaper suggests to him that he needs it.

No one will buy something he doesn't know about. People who are interested in buying read their community newspaper.

Our industry is evidently not taking full advantage of this fact. One of the lessons to be learned from this survey is that the manufacturer-wholesaler-contractor distribution unit of our industry should advertise more. We must remember that, since the average person gets his opinions from reiterated facts, we must do our best to keep our plumbing story before them through more and better advertising.

Comment on the survey should not be made without taking into consideration the price angle of the entire situation, as found by our investigators. Concerning this, it was noted that many staple fixture items of our industry were being quoted to the consumer by the DTU houses at approximately 20 to 25 per cent less than the master plumber is obliged to pay the regular wholesaler. Recently, there has been an attempt to correct this situation. We are now inclined to believe that the spread is slightly smaller, but it is still a fact that in Cincinnati today the price quoted by the direct-to-you house to the consumer is from 10 to 12½ per cent lower than the plumbing contractor is still obliged to pay the regular wholesaler on many staple fixtures.

SURVEY CLEARS ATMOSPHERE

In the early part of this year, manufacturers made substantial reductions in prices. The intention of this movement was that by manufacturer-reduction of prices wholesalers in turn would make concessions, and then, the plumbing contractor would also content himself with a smaller margin. Thus, they hoped that collectively they might be able to meet the DTU competition on a price basis. Up to this writing, with the exception of several competitive fixture items, this has not been accomplished. Seemingly the only beneficial thing is that it possibly has caused a substantial removal from the field of the small independent manufacturer who was attempting to market his materials direct to the plumbing contractor and escaping the wholesaler's profit.

The general effect of the Cincinnati Survey upon the industry, up to this time, is encouraging from several angles. In the first place, it has had the effect of making the plumbers of that area more aggressive in their determination to conduct their businesses along more modern lines; second, it has definitely established the fact that the master plumber is an important business factor in his community, and that the confidence of the public is still with him; third, it has set into motion preliminary plans for an aggressive newspaper campaign that will open very shortly in that area.

Finally, and in conclusion, the speaker would like to emphasize the fact that the Cincinnati Survey is the first complete and comprehensive study of the master plumber's problems. Certainly, it is a striking tribute to the leadership of the National Association. They have taken the initiative in sponsoring this very valuable group of statistics.

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The twelfth article of this series by H. L. ALT

Heating in Residences and Small Structures

WHILE the one-pipe vapor steam is not nearly as common as the two-pipe variety a discussion of vapor heating would be incomplete without including this type of system. As far as the piping is concerned, the same sizes and the same method is used as for the ordinary one-pipe gravity steam system; this means that any one-pipe gravity steam system can be turned over into a one-pipe vapor job with absolutely no change in the installation so far as the piping is concerned. This has been done more or less frequently and has given very satisfactory results.

Certain changes are necessary in the accessories on the system if it is a change-over or if an entirely new installation is contemplated. The first of these is the use on the supply connection to the radiators of a special plug type of radiator valve similar to that illustrated in Fig. 49, this valve being so constructed as to give an absolutely free and unobstructed passage to the condensate when open. The next item is the use of a special type of automatic air valve similar to that shown in Fig. 50 on the air vent tapping of each radiator; these valves are made in three sizes the smallest size being used on the radiators nearest the boiler, the medium size on radiators about midway out on the main, and the largest size on the radiators farthest away from the boiler. The net result is a slower air elimination on the first radiators to receive steam and a faster air relief on the radiators farther on. The flow of steam into the radiators is somewhat equalized by this method over what occurs in the ordinary gravity steam system where the radiators nearest the boiler are always favored by the steam.

At the ends of the steam main where it drops down into the wet return air eliminators as shown in Fig. 51

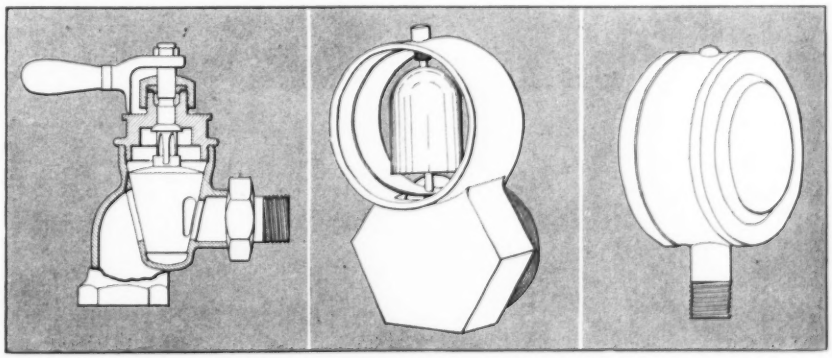

Fig. 49—Radiator valve: Fig. 50—Radiator air valve; Fig. 51—Air valve used for venting the ends of steam main. All are for one-pipe vapor system

Pipe sizes used in one-pipe vapor system in apartment house

Radiation in Sq. Ft.	Pipe Size Required Nom. Diam. In.	Pipe Size Used Nom. Diam. In.
Front Main		
48	1¼	1¼
81	1½	1½
129	1½	2½ Main.
125	2	2
254	2	2½ Main.
55¼	1¼	1¼
309¼	2½	2½
42½	1	1¼
351¾	2	2½ Main.
59½	1½	1½
411¼	2½	2½ Main.
90	2	2
501¼	2½	2½ Main.
46¾		
58⅜		
40½		
647⅛	3	3 Main.
70	1½	1½
717⅛	3	3 Main.
35		
29¼		
69½		
850¾	3	3 Main.
Rear Main		
21	1	2
21		
42	1	2
38¼		
80¼	1¼	2
38¼		
118½	1¼	2½
35		
153½	1½	2½
21		
25½		
42½		
242½	2	2½
74⅜		
316⅛	2	2½
40½		
357⅜	2	2½
36		
393⅜	2½	2½
90		
483⅜	2½	2½

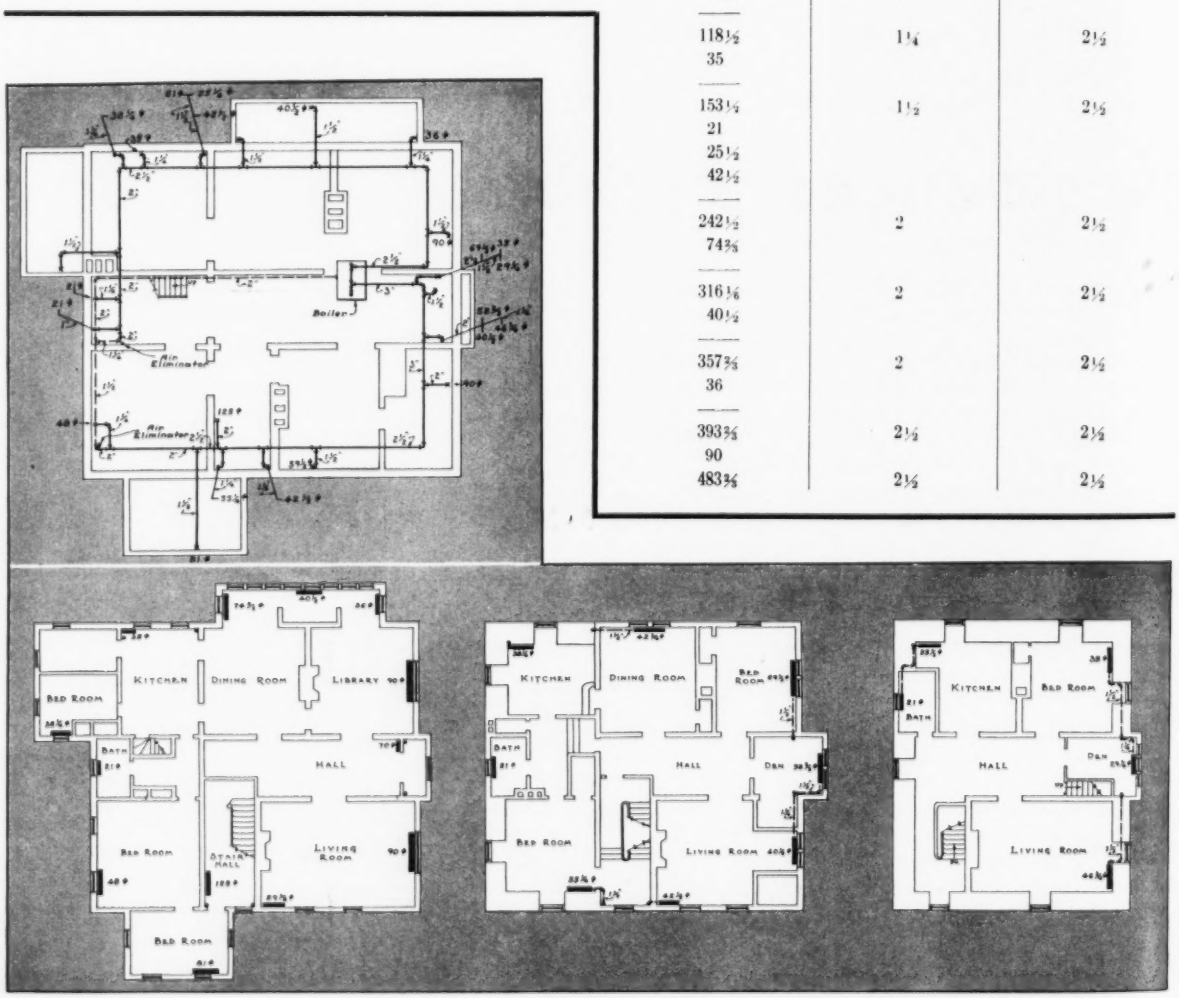

Fig. 52—Above: Basement plan of small apartment house heated with one-pipe vapor. Figs. 53, 54 and 55—Left to right: First, second and third floors, respectively, of a house heated with one-pipe vapor

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And note this: These important improvements have been added at no extra cost to you, for Kennedy Fig. 27 is still sold at standard market prices. These valves, which will do credit to your finest work, are priced low enough to permit using them even on competitive jobs where you must figure closely.

And remember, when you figure on Kennedy Valves and Pipe Fittings, you are protecting your profits, for Kennedys always go on the pipe easily, make up tight joints quickly, help to speed up pipe fitting time, and avoid make-overs.

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VALVES-PIPE FITTINGS-FIRE HYDRANTS

Radiation in Sq. Ft.	Total Radiation in Sq. Ft.	Pipe Size Req. Nom. Diam. In.	Pipe Size Used Nom. Diam. In.
Branch "A"			
Riser No. 1			
40		1	1¼
50		1	1¼
—			
90		1¼	1½
45			
—			
135		1½	1½
30			
—			
165		2	2
	165	1½	3 Main.
First Floor			
125		1½	1½
	125		
	—		
	290	2	3 Main.
Riser No. 2			
90 (est.)			
72			
—			
162		2	1½
35			
—			
197		2	2
	197		
	—		
	487	2½	3 Main.
First Floor			
100		1½	2
	100		
	—		
	587	2½	3 Main.
Riser No. 3			
80			
40			
—		1½	1½
120			
40			
20			
—		2	2
180	180		
	—		
	767	3	3 Main.
Riser No. 4		1¼	1½
80			
40			
36			
—		2	1½
156			
60			
65			
—		2	2
281	281		
	—		
	1048	3	3 Main.
Riser No. 5		1¼	1½
80			
40			
—		2	1½
120			
65			
—		2	2
185	185		
	—		
	1233	3	3 Main.

are used to free the mains from air and to prevent the flow of condensate being retarded at this point by air building up pressure without a vent for its relief. On the boiler a special regulator is used, this being similar to the special regulators required for all vapor systems and a steam gauge of fine graduation so that control of the steam pressure can be maintained at only a few ounces above atmospheric.

This one-pipe system of vapor heating does not attempt to operate at any time at pressures below that of atmospheric but does operate at a very few ounces (four to eight) above atmospheric.

In Fig. 56 is shown the plan of a small building which originally had a one-pipe gravity steam system and later was turned into a one-pipe vapor system. The steam pipe arrangement will be seen to be somewhat peculiar involving a single branch, "A" running out to the wing and with all the other branches such as "B-C-D-F" made in the form of loops excepting the small runout marked, "E." Air eliminators were installed at the ends of branch "A," "F" and "D" these eliminators also serving for branch "B" and branch "C." The mains are very liberally sized as will be seen by the comparison following:—

Like all vapor systems the piping must be correctly

Branch "B"			
First Floor			
65		1¼	1½
	65		
Riser No. 6			
80			
60			
—		1½	1½
140			
25			
20			
—		2	2
185	185		
	—		
	250	2	4 Main.
Riser No. 7			
90 (est.)			
48			
20			
—		1½	1½
158			
25			
—		2	2
183	183		
	—		
	433	2½	4 Main.
Riser No. 8		1¼	1½
80			
40			
—		1½	1½
120			
65			
—		2	2
185	185		
	—		
First Floor	618	2½	4 Main.
80		1¼	1½
	80		
	—		
	698	3	4 Main.

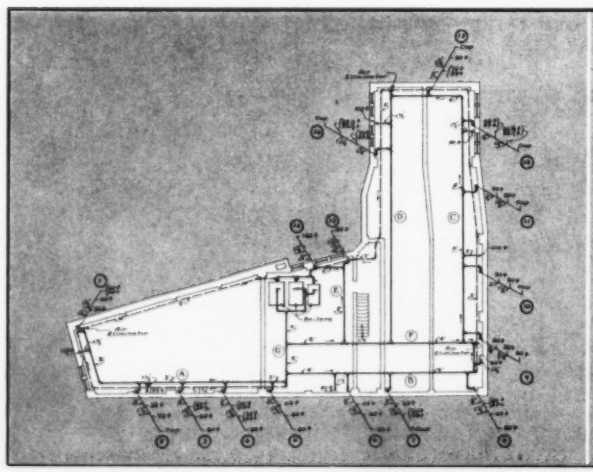
Radiation in Sq. Ft.	Total Radiation in Sq. Ft.	Pipe Size Req. Nom. Diam. In.	Pipe Size Used Nom. Diam. In.	
Branch "C"				
Riser No. 13				
90 (est.)				
50				
—				
140	.....	1½	1½	
70				
55				
—				
265	.....	2	2	
	265	2	4	Main.
Riser No. 12				
90 (est.)				
26½				
33⅓				
—	.....	1½	1½	
149⅓				
48				
55				
—				
252⅓	.....	2	2	
	252⅓			
	—			
	517⅓	2½	4	Main.
First Floor				
80	80			
	—			
	597⅓	2½	4	Main.
Riser No. 11				
90 (est.)				
50				
—	.....	1½	1½	
140				
50				
—	.....	2	2	
190	190			
	—			
	787⅓	3	4	Main.
First Floor	.....	2	2	
100	100			
	—			
	887⅓	3	4	Main.

graded without pockets as the pressures used are so low that slight defects in grading which might not seriously affect other systems using higher pressures will prove a very serious matter in vapor work.

An installation designed with the intention of using one-pipe vapor heating is shown in Figs. 52, 53, 54 and 55 which are the Basement Plan, First Floor Plan, Second Floor Plan and Third Floor Plan, respectively, of a small apartment house, the apartments on the first and second floors consisting of three bedrooms, kitchen, bath, living room and library on the first floor which is changed to a den on the second floor. In the top story the apartment consists of one bedroom, a living room, den, kitchen and bath. Radiators are installed as indicated on the layout with one-pipe risers run exposed down to the cellar.

The piping system as laid out for this apartment house is a much more rational one, as far as sizes are concerned, than the previous change-over installation and the piping arrangement is a more simple, consistent and logical scheme. In fact this might almost be termed an ideal one-pipe vapor installation. The two outlets from the boiler are cross connected by a header and two runouts are taken from this header, one runout supplying the front portion of the building, and the other runout taking in the rear section. Both steam mains terminate at a point nearly opposite the boiler on the other side of the cellar so that the length of run for each main is nearly equal. Both mains are dripped at the ends with air eliminators located above the drips and the drips are connected together below the water line and are run back to the boiler as a common wet return for the whole installation.

The following schedule indicates how closely this installation follows the sizing tables previously submitted in these chapters for guidance particularly Tables XIII and XV.



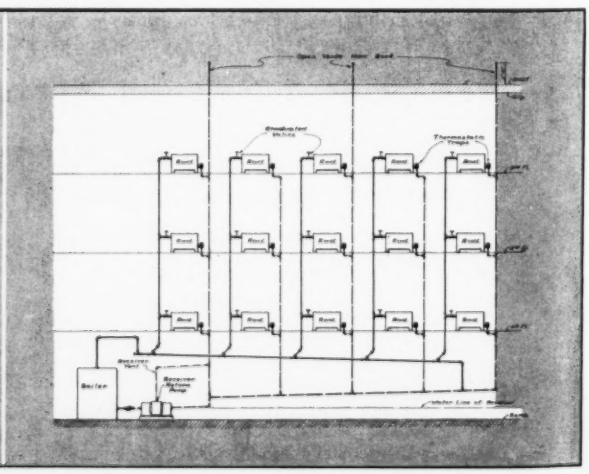


Fig. 56—Left: Plan of small building originally piped for one-pipe gravity steam and changed over to one-pipe vapor. Fig. 57—Right: Typical arrangement of the atmospheric system of steam heating

A NEW TEMPLE OF HEALING INVITES THE SUN

LOS ANGELES COUNTY GENERAL HOSPITAL

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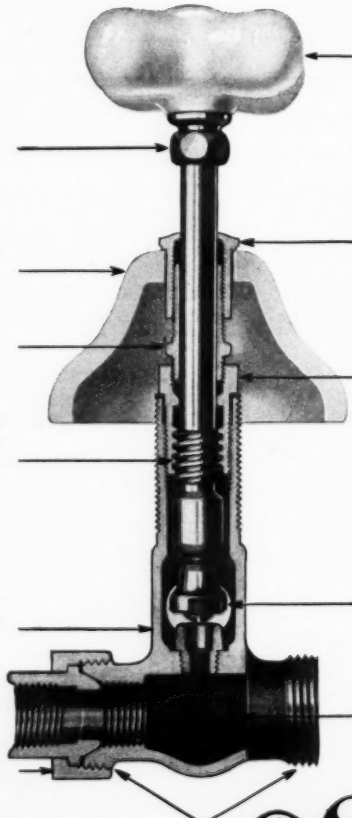
Scovill Shower Valve



China handle interchangeable with Scovill metal handle.

Handle secured to stem by spud and friction lock-nut.

Long escutcheon bushing allows ample adjustment for tile and wall thickness.

China escutcheon interchangeable with Scovill metal escutcheon.

Long stuffing-box nut provides liberal adjustment.

Entire stem-action removable from valve-body without disturbing installation behind wall.

Double-pitch threads on stem make possible full flow of water at slight turn of handle.

Long-bearing swivel for seat washer prevents water-chatter and assures positive shut-off without any grinding action on washer. (Illustration shows section of retaining wall cut away to show thickness of seat-washer.)

Removable seat may be removed from finished face of wall.

Full waterway.

Female union coupling furnished for supply connection.

Valve-body tapped and threaded on both ends.

Scovill

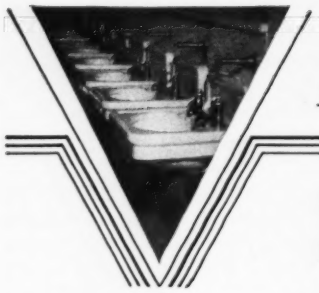
There is one type of heating system which is a little hard to define with exactitude and that is the so-called atmospheric system. Perhaps for lack of a better description it might be said that an atmospheric system is a two-pipe gravity steam heating system in which the return main is at all times open to the atmosphere without the use of any interposing valve, check or other device in the air connection. Yet even this is not always true as atmospheric systems can use receiver pumps on the return to pump the return water back into the boiler and, in fact, usually do have some kind of a pump for this purpose. Under certain conditions the pump can be omitted but the return in this case must build up sufficient head to counterbalance the boiler pressure or it must be discharged into an open feed water heater or receiving tank with little or no back pressure against which the return must force its way.

In the atmospheric system the radiators commonly employ a graduated packless radiator valve and a thermostatic return radiator trap just the same as in a regular vacuum system. The returns from the radiators discharge into return risers which are collected together into main returns and which are vented to the atmosphere at one or more points according to the size of the system. In the systems considered in this chapter only small systems with two or three points of venting will be discussed. A typical small system of this type is illustrated in Fig. 57 and it will be noted that a receiver return pump has been shown to return the water to the boiler. This is because in the ordinary small plant no receiving tank or feed water heater will be available and a pump must be used unless there is vertical height enough to permit the return water backing up until the head is sufficient to overcome the boiler pressure. This occurs in the same way as in a vapor job where condensate will back up the return unless an automatic return trap is installed. When a receiver pump is used it is best to vent the receiver so as to prevent air binding at this point and this has been indicated on the drawing.

In running the steam main for an atmospheric system the same sizes may be used as for a vacuum job because the atmospheric system from the boiler outlet as far as the radiator trap is exactly the same as a vapor installation; it is in the arrangement of the return where the difference comes. All drips on the steam main must be through thermostatic traps to the return and the air

(Continued on Page 154)

Radiation in Sq. Ft.	Total Radiation in Sq. Ft.	Pipe Size Req. Nom. Diam. In.	Pipe Size Used Nom. Diam. In.
Riser No. 10			
90 (est.)			
50			
140		1½	1½
50			
190		2	2
	190		
	1077 ⅚	3	4 Main.
Riser No. 9		1¼	1½
80			
50			
130		1½	1½
50			
180		2	2
	180		
	1257 ⅚	4	4 Main.
Loop "D"			
First Floor		1¼	1½
100	100	1¼	3 Main.
Riser No. 14			
90 (est.)			
26½			
33⅓			
149 ⅚		1½	1½
70			
55			
274 ⅚	274 ⅚	2	2
	374 ⅚	2	4 Main.
Branch "E"			
Riser No. 15		1¼	1½
80			
50 (future)			
130		1¼	1½
50 (future)			
180	180	2	2
Riser No. 16		1½	1½
120			
50 (future)			
170		2	1½
50 (future)			
220		2	2
	220	2	2
	400	2½	2
Loop "F"			
First Floor			
65		1¼	1½
	65	1¼	4 Main.
Branch "C"			
1257 ⅚		4	4
	1257 ⅚		
	1322 ⅚	4	4 Main.
Loop "D"			
374 ⅚		2	4
	374 ⅚		
	1697 ⅔	4	5 Main.
Branch "G"			
400		2½	2
	400		
	2097 ⅔	4	5 Main.
Branch "E"			
Branch "A"	1233	3	3
Branch "B"	698	3	4
Loop "F"	2097 ⅔	4	5
	4028 ⅔	5	6 Main



ANSWERED

QUESTIONS FROM OUR READERS AND ANSWERS BY OUR ENGINEERS

About Gas Water Heater Connections

TO THE EDITOR:

I have recently installed a kitchen hot water tank in accordance with the connections shown on pages 30 and 31 in the February 20th issue of DOMESTIC ENGINEERING, Fig. 3, with the exception that I have placed at the top a bypass tee, as shown in Fig. 5. I am having trouble in getting hot water, and I would appreciate if you would advise me if the 6-in. nipple attached to this tee is required and, if so, for what purpose. I am burning wood in the range and would like to know if you can tell me what causes the trouble.

New Brunswick, Canada. W. V. P.

TO THE READER:

The Fig. 3, which our correspondent mentions is shown herewith as Fig. 1, and the Fig. 5 is given in Fig. 2. It will be noted that Fig. 1 is the ordinary "quick heating" connection which has been used for years in the connecting up of gas water heaters, while Fig. 2 is a method of connecting which, according to the tests, produced more hot water in the top of the tank but at a less intense temperature owing to the fact that the 6-in. nipple delivered the water somewhat lower down in the tank instead of right at the top as was done with the "quick heating" connection. It is self-evident, that if the 6-in. nipple is omitted, the main object of this device will be defeated and the heated water will be delivered right at the top of the tank the same as with the "quick heating" connection.

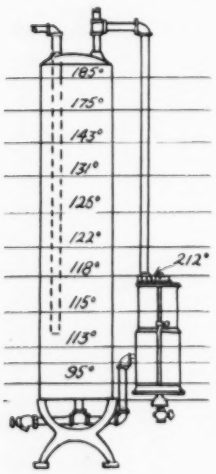


Fig. 1

One thing which our correspondent may have overlooked is the need of a small vent hole in the high point of this fitting to prevent air lock and the retarding of the circulation from the gas heater. This is illustrated in Fig. 3. It is believed, however, that the main cause of the trouble is the fuel used for, while wood will make a very hot fire for a short time, its effects soon wear off and heating hot water in a kitchen range requires a continuous source of heat so that the water can accumulate during times of non-use and be ready for the time when it is required. One very interesting example of this is a case where soft coal was being used in a range

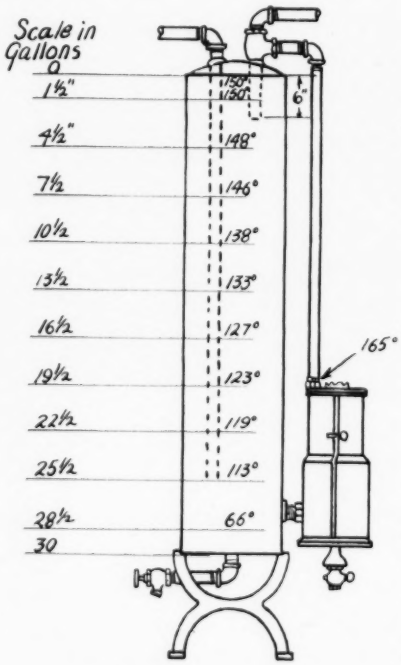


Fig. 2

and the fire was allowed to go out whenever there was no cooking to require it. The result of this method of operation was that the tank never became heated at all for, as soon as a small quantity of hot water began to accumulate, the fire was allowed to go down and the small portion of hot water was soon used up, leaving nothing in the tank but cold water.

A coal fire, however, which is constantly maintained will build up a reserve of hot water to carry over the periods of heavy demand and consequently there always is hot water when it is required. It is believed that a positive statement can be made that a kitchen range in which a fire is not carried uninterruptedly and continuously will fail to heat a hot water tank in a successful manner. Of course, if the wood fire is kept burning all the time there should be no difficulty on this score but we strongly suspect that, with wood as a fuel, the fire is out all night and possibly shortly after the evening meal. If so this would account for the shortage of hot

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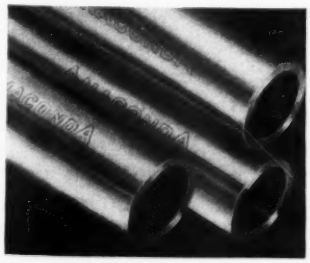

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from mine to consumer

MOST home builders know that water pipes that rust sooner or later cause expense. They know, too, that Brass *cannot* rust. But the typical home owner does not fully appreciate that Anaconda Brass Pipe costs so little more than the rustable kind . . . about $60 (national average) for a 7-room house. Nor does he realize that the cost of even a small replacement of *concealed* piping is often more than that amount!

It follows, then, that most people will pay a fair price for Brass pipe, when they understand the economies it offers. Remember to say to your next customer, "Anaconda Brass will save far more than its slightly higher first cost."

Leading plumbing supply houses carry Anaconda 67 for normally corrosive water, 85 Red-Brass Pipe for highly corrosive water, and Deoxidized Copper Water Tubes. The American Brass Company, Waterbury, Connecticut.

ANACONDA BRASS PIPE

PLUMBERS SAVE MONEY

From Coast to Coast with this SIMPLE REGULATION on a Watrous FLUSH VALVE

Here is why

1. Watrous Valves are diaphragm type. Adjustable for any length of flush by merely turning the screw shown in the illustration. Regulation can be made without turning off water supply or dismantling of valve.
2. By-pass is self-cleansing—will not clog from sand or foreign material.
3. Has 25% larger diaphragm area in control chamber, therefore will operate on lower pressures.
4. Larger water-way releases more water per second of opening. Unequalled for eliminating usual "top floor troubles" because of lowered water pressures.
5. Watrous Flush Valves are trouble-proof. No costly "comebacks", no expensive servicing after installation.

Ask Your Jobber

THE IMPERIAL BRASS MFG. CO.
1231 W. Harrison Street
CHICAGO ILLINOIS

water but the vent should be installed in the fitting—a ⅛th in. hole will be ample—in any event and there is no good reason that we can see in this particular case why

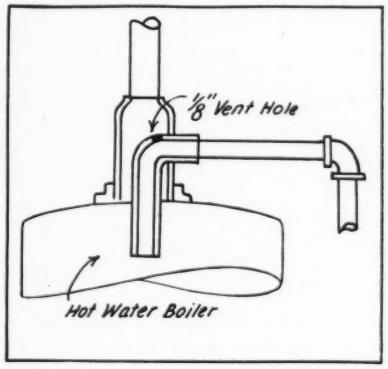


Fig. 3

the ordinary boiler connection would not be satisfactory such as is indicated in Fig. 4. Our correspondent's attention is called to the fact that the boiler connections,

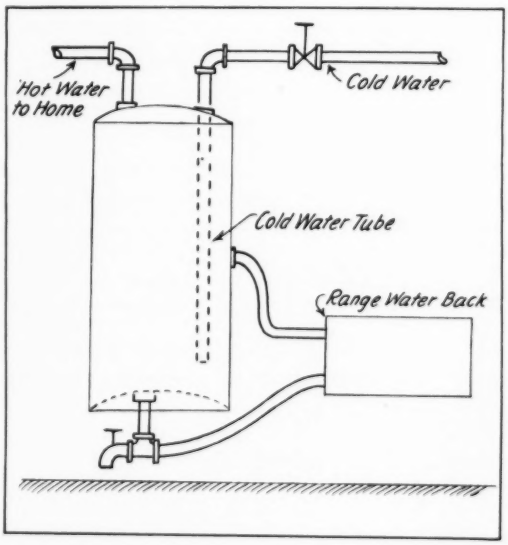


Fig. 4

illustrated in the article which he mentions, referred particularly to thermostatic control as applied to range boilers and to gas heater installations.

Water Pipe Sizes for Closet Installations

TO THE EDITOR:

In the April 2nd issue of DOMESTIC ENGINEERING I noticed an article on the subject of water pipe sizes in the "Questions Answered by Readers" on page 59, which referred in particular to the sizing of a cold water main for feeding 10 water closets with 1¼-in. flush valves when the water pressure is 40 lb. I would like to advise that in 1925 I installed the plumbing and heating in a school here and that there was on the site a 2-in. water main which was extended to the center of the new building and then branched off to two batteries of closets numbering 16 in all. The plan used was to run the pipe full 2-in. size down to the last closet and to branch off to each fixture with 2 x 1¼-in. tees and reducing elbows.

The town water pressure was 42 lb. at that point, and the installation has given entire satisfaction ever since. I believe that if water supply piping is run full size right out to the last fixture we reduce the friction and that we are insured of an adequate supply of water at the end closets when these are in operation; we do this on the ends of the mains in a hot water heating job in order to favor the farthest radiators and the amount of extra cost involved is hardly worth considering.

Ontario. C. W. P.

TO THE READER:

Our correspondent has brought up a very good point which should be considered in cases where the size of the main supply is somewhat less than good design seems to indicate as desirable. In the reply referred to there were several methods given for sizing the supply main to 10 flush valve water closets, but only one of the solutions reached a size as low as 2½ in., while three other methods brought 3 in. as the proper size based on the maximum probable number of flush valves that might be operated at one time. Our correspondent, however, had only a 2-in. main to begin with and probably could not have enlarged this supply without going way back to the street main at considerable expense. Therefore he took somewhat of a chance and used the 2-in. main, but favored the closets at the far end of the line by not reducing the main at all, thus, in a measure, reducing his friction as far as possible, especially on the extreme ends of the line.

The fact of the matter is that the reply in question gave three answers where the 2-in. pipe was carried as far as the second last closet and only had a 1¼-in. branch run to the final fixture, while one solution carried 1¼-in. pipe to the final fixture, 1½-in. pipe to the second last fixture, with 2-in. pipe beyond this, so that the answer seems to favor our correspondent's contention that there would be little expense involved in running 2-in. full size to the point where the final fixture is tapped off. The fact is that, owing to the larger sizes of supply main offered in the solutions published, actually the drop in the piping suggested will be less than our correspondent was forced to meet with only a 2-in. supply pipe, and it therefore was not as necessary to favor the end fixtures to the extent which our correspondent felt was advisable on his job and in which we concur in his opinion. We are not quite clear as to what his reference to a "reducing elbow" means unless he intends to indicate that his flush valves were 1-in. tapping and that he used a 1¼ in. x 1 in. reducing ell to get the size down to the proper diameter to connect with the flush valve inlet. Of course there is still the possi-

bility that this line in years to come will corrode or coat up sufficiently on the inside to reduce the flow so that trouble may later be experienced with this supply, although our correspondent states that no such trouble has developed so far.

Another method which could have been used—or which may be used if any trouble should later develop due to filling up of the supply line—would be to place a small pneumatic tank at the end of the line so that any severe drop in pressure would allow the tank to supply

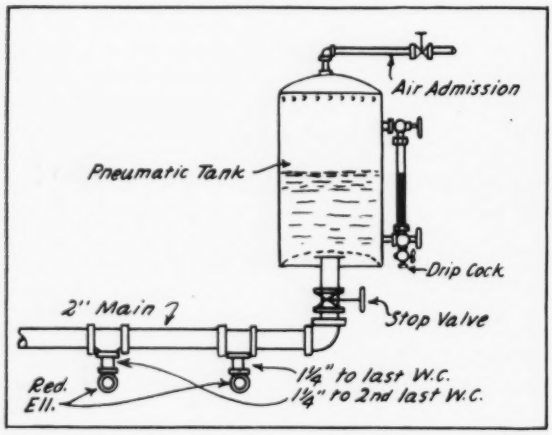


Fig. 1

water temporarily to meet the demands of two or three flushes coming simultaneously and allowing the tank to recharge with water between times of heavy flushes. This would be installed somewhat as illustrated in Fig. 1, and would also serve as an air cushion on the end of the line. Our correspondent does not state whether he made any provision for cushioning on the end of the line or not, but, if he did, and made this of considerable capacity, this may be the answer as to why no trouble ever has developed. We would recommend, however, that where physical features permit sizing the pipe along the lines given in our reply to the original question, this scheme should be followed, as the friction drop would be less than with our correspondent's scheme and there is little likelihood of lines of the sizes shown blocking up sufficiently to give trouble at some later date. There is no objection, of course, to carrying the pipe full size down to the last fixture, but we believe that, with a 3-in. galvanized pipe supplying the battery, running this main full size to the last closet is not only unnecessary but unduly expensive—more expensive in fact than our correspondent would have one assume. It should not be forgotten that pipe sizes should be based on conditions after a ten or fifteen years period and not on what will happen when the installation is comparatively new and everything clean and working 100 per cent. Pipes have been known to lose half or three-quarters of their total inside area in some localities due to a combination of rust and lime, or other minerals contained in the water, coating the interior surfaces of the pipe, so that we must not work too close on pipe sizes if long and satisfactory service is to be considered.

Cesspool Too Close to Well

TO THE EDITOR:

I am enclosing a sketch of some work done in our town by a plumber who was also a builder of cement tanks, and said to have had 15 years of experience.

The tenant's boy was taken ill with a fever. At the physician's suggestion the water was analyzed and found unfit for use.—Kindly comment on this.

Michigan. E. E. E.

TO THE READER:

The accompanying sketch shows the layout which E. E. E. mentions in his letter.

His criticism loses its full force from the fact that he omits distances. In their absence we can discuss the conditions only in a general way.

It goes without saying that close proximity of the outhouse to the dwelling, and particularly to a bedroom, is a condition that should not be tolerated.

A much worse condition however, is presented by close proximity of the cesspool to the well, the cistern and also to the bedroom.

If the cesspool is of the leaching type, the conditions

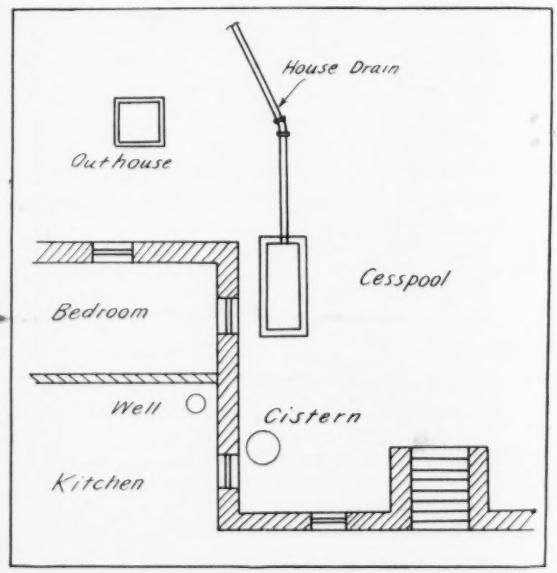


Fig. 1

could hardly be worse. A leaching cesspool should not be located within 100 ft. of any dwelling or water-tight cistern, or within 300 ft. of any well, or other source of water supply. The same rules should be followed also in the locating of the outhouse.

The well and cistern are also in danger from leakage of drainage from the kitchen sink and drainage line from house to cesspool. The danger is all the greater when the outhouse or cesspool are located on higher ground than the well or cistern.

The New "Standard" TUBULAR Lavatory

DISTINCTIVE . . . SMART . . . MODERN AND REASONABLY PRICED!

The new "Standard" Tubular lavatory was created by the designer of the Neo-Classic Ensemble.

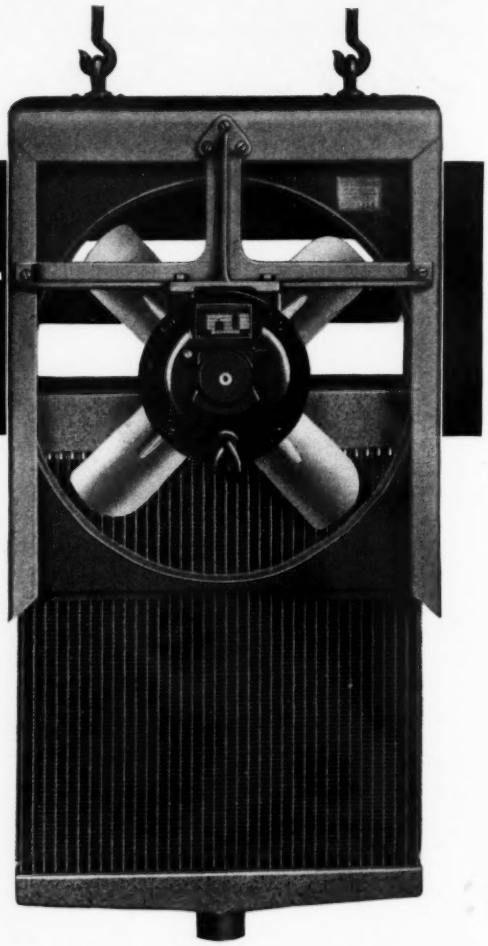
It was first presented to a group of architects, builders and interior decorators who gave it their enthusiastic approval.

Its glittering tubular frame, finished in Chromard, its trim, vitreous china slab, and its streamline spout and smart, vitreous china handles, combine to give it individual and refreshing charm.

Among your customers are those who want something novel to complete the modern bathroom, downstairs lavatory or dressing room. Call their attention to the "Tubular".

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

The CAMERA TELLS the STORY



.... the story of another exclusive Perfex feature!

ONLY the Perfex Uniheat has this quickly removable core. You simply take out four accessible screws, loosen the inlet collar, and disconnect the inlet and return piping. The core is then dropped out for cleaning and inspection without disturbing the rest of the unit or even the setting of the louvres.

Contrast this with the usual job of disconnecting wiring, handling a heavy unit, and struggling with the core after the unit is on the floor. Scores of practical men have said that if the Perfex Uniheat had no other advantage over other unit heaters, it would still be their first choice as a result of this feature alone.

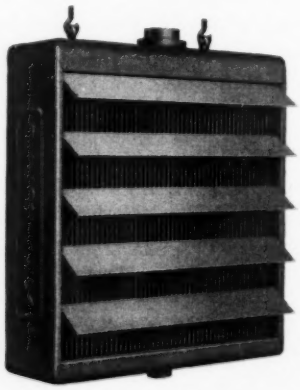
But it *does* have other advantages—the unequalled combination of features listed opposite. Why accept *less*, when the Perfex Uniheat costs no more? Greater experience and greater facilities make this greater value possible. Write for engineering and installation data.

PERFEX CORPORATION
(Heating Division)
MILWAUKEE WISCONSIN
Heat Radiation Specialists for Over Twenty Years

ALSO MANUFACTURERS OF:
Concealed convection heaters of advanced design and construction
Process cores for all types of pre-heating and process work

Perfex alone combines these features:

1. Copper and bronze core from inlet to outlet. No corrosion; no unequal expansion; no leaking.
2. Core is suspended within unit, giving complete freedom for expansion and contraction.
3. Core can be quickly removed without disturbing cabinet, motor, wiring or even the setting of the louvres.
4. Entire unit is suspended from ceiling, eliminating load and strains on piping.
5. Three point motor support.
6. Liberally rated motor and quality construction throughout.
7. Individually tested and guaranteed.



PERFEX UNIHEAT

Can You Answer These Questions?

A Question and Its Answer

The following question was asked in the issue of May 28, and the following answer is by a reader:

What percentage of increase in heat emission would you expect to receive on a steam heating system when the radiators are standing in a room temperature of 70 deg. Fahr., if the steam pressure is increased from 2 lb. gauge to 5 lb. gauge?

1

THERE is an old saying among steam fitters and contractors that, if a job won't heat with 2 lb. pressure, neither will it heat with 5 lb. pressure but it is interesting to see just what increase in heat emission will be secured in changing the pressure by this amount. If the room temperature remains at 70 deg. F in both cases the radiation from the radiators will—to all intents and purposes—be proportional to the temperature differences existing between the steam in the radiator and the air in the room. Radiation today is rated, not on the actual square feet of outside surface on the radiator but, instead, is rated on the amount of heat emission, 240 Btu being taken as equal to one square foot of surface no matter what the actual amount of surface may be.

Also this heat emission is based on having one pound of steam pressure inside of the radiator and in having the radiator standing in still air at 70 deg. Fahr. Under these conditions the heat transmitted is 240 Btu per sq. ft. of *rated* surface. Now the temperature of the steam at 1 lb. gauge pressure is approximately 216 deg. Fahr. so that the difference between the room temperature and the steam temperature under the standard conditions will be

216 deg. Fahr. — 70 deg. Fahr. or 146 deg. Fahr.

under which temperature difference the radiator will give off 240 Btu per rated square foot. The amount of heat transmitted, then, per degree of temperature difference will be

240 Btu / 146 deg. Fahr. or 1.64 Btu

Let the conditions now be considered for a steam supply at 2 lb. gauge pressure under which pressure the steam has a temperature of around 222 deg. Fahr. This makes the difference between the steam temperature and the room temperature

222 deg. Fahr — 70 deg. Fahr or 152 deg. Fahr

so that, if the transmission is 1.64 Btu per degree of difference, the heat transmitted by the radiator under the condition of 2 lb. gauge pressure will be

1.64 Btu × 152 deg. Fahr. or 249.28 deg. Fahr.

per sq. ft. of rated surface.

When the steam pressure is increased to 5 lb. gauge, the steam temperature will be around 228 deg. Fahr., and this will result in a temperature difference between that of the steam and of the room of

228 deg. Fahr. — 70 deg. Fahr. or 158 deg. Fahr.

and the transmission of heat from the radiator under this condition would be

1.64 Btu × 158 deg. Fahr. or 259.12 Btu

Now the question is, what percentage of increased heat delivery may be expected. In order to ascertain this it is necessary to assume that the amount of heat transmitted at 2 lb. gauge represents 100 per cent, or the base of the calculation, and then to find what the increase is in Btu and to reduce this increase to a percentage of the base heat emission. It has been seen that the heat emitted with 2 lb. gauge is 249.28 Btu and that the heat emitted at 5 lb. gauge is 259.12 Btu so that the actual increase in heat emission is

259.12 Btu — 249.28 Btu or 9.84 Btu

and this may be transposed into a percentage of 249.28 Btu (the original heat transmission at 2 lb. gauge pressure) by dividing the increase in transmission by the original transmission, thus:

9.84 Btu / 249.28 Btu or 0.0394

which, to all intents and purposes, is 4 per cent. In fact there will be a slight increase in the factor of 1.64 Btu transmitted per degree, per sq. ft. of rated surface as the steam temperature is increased, or the room temperature is diminished, owing to the circulation of the air over the heating surface becoming slightly accellerated under greater temperature differences and becoming slightly retarded under lesser temperature differences; this change in the air movement, however, would be so small for an increase of only 6 degrees in the temperature difference (158 Fahr. — 152 Fahr.) that it may be neglected.

Of course all the above calculations have been based on one square foot of rated radiator surface but any multiple of the single square foot would show the same percentage result if multiplied by the same multiplier as, for example, a 10 sq. ft. radiator would transmit at 2 lb. gauge

249.28 Btu × 10 or 2,492.8 Btu

and at 5 lb. gauge

259.12 Btu × 10 or 2,591.2 Btu

but the percentage of increase would remain unchanged as will be seen by reducing the increased heat emission to percentage the same as was done previously, this giving

2,591.2 Btu — 2,492.8 Btu or 98.40 Btu

and

98.40 / 2,492.8 gives 0.0394 or about 4 per cent

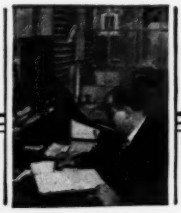
exactly the same as was obtained when 1 sq. ft. was used.

How Would You Answer This Question?

A pump is required to deliver 200 g.p.m. of water through a 3-in. pipe from a lake to an elevated tank for a summer hotel. The water level in the tank is 75 ft., above the pump and the lake level is 5 ft., below the pump; what would be the approximate total head on the pump if the pipe is 250 ft. long and has six 90 deg. elbows and one check valve?

Answers based upon your experience, and suitable, will be paid for and published in the September issue.

MARKETS



BUSINESS REPORTS FROM LARGE JOBBING CENTERS

WHILE in its outward indications, the plumbing and heating market is moving along at the same pace as general business, the inward evidence reveals a more determined, individual effort to regain stability and bring the return of profits that much nearer.

The somewhat healthier tone of general business is becoming better understood. The resistance which various commodities are showing to further price declines is definitely encouraging.

The steady whittling away at prices of commodities has been a major source of concern, both to manufacturers and to wholesalers and retailers. An attempt to make a profit or at least to break even, in the face of a dropping demand, was rendered even harder by the steady sag in the basic prices after the process of manufacturing and distribution had been started. With greater assurance of a stable commodity market, both manufacturers and distributors can plan sales work with more definite knowledge of what their costs are and what sales prices they must get.

Within the industry, a market observer finds a more determined effort on the part of individual makers and distributors to work out their own salvation instead of depending upon the rescuing efforts of others. This change in mental attitude is positive and important. And when it is realized that other industries are likewise approaching the same basis of self-help, it promises a constructive movement toward better business that means better returns to the individual manufacturer, or wholesaler and retailer, than any nation-wide program such as we have had from which the individual was to receive benefits without the necessity of contributing much work.

These comments are made from observing the facts that manufacturers, many of them, have developed new or improved products, have got them out of the engineering department, through the manufacturing process and ready for display on the sales floors. These products represent the result of months of effort to develop something with better sales possibilities in today's market.

SEVERAL HUNDRED NEW PRODUCTS

When DOMESTIC ENGINEERING can find 85 such improved products worthy of describing in words and pictures in one issue—as we did in our June number, everyone in the industry can appreciate the wholesome nature of this widespread effort by so many companies to promote and improve business. These 85 items were selected to cover the range from the basement to the top floor, from small buildings to large ones and from the city job to the farm market. They did not exhaust the number of 1932 improvements. Obviously some companies in related lines may have developed similar products and we described only one. And space limitations kept others out.

With several hundred improved products ready for sales promotion, with these designed to meet the conditions of the present market, with some measure of enthusiastic leadership in sight from manufacturers who feel that they have developed a 1932 seller, and with distributors anxious to find something to break through the barriers which older methods are constantly meeting, the inward condition of the plumbing and heating industry is certainly more healthy than for many months. Everyone has some new sales weapons ready for use. And at least those who use them will get further than those who wait for business to pick up.

BUILDING PERMITS IN MAY GO UP

Reports of building permits issued have been received by the Bureau of Labor Statistics of the United States Department of Labor from 352 identical cities of the United States having a population of 25,000 or over, for the months of April, 1932, and May, 1932. The estimated cost of all buildings for which permits were issued in these 352 cities during the month of May, 1932, was $67,501,025. This was 24.0 per cent greater than the estimated cost of building operations in these cities during the month of April, 1932. Ordinarily permits issued during May show a decrease as compared with April.

May Building Record Improves

ESTIMATED COST OF NEW BUILDINGS IN 352 IDENTICAL CITIES AS SHOWN BY PERMITS ISSUED IN APRIL AND MAY, 1932

Geographic Division	Cities	Total construction (including alterations and repairs) estimated cost	
		April, 1932	May, 1932
New England	54	$ 4,555,401	$ 3,741,760
Middle Atlantic	71	19,169,539	15,164,225
East North Central	92	8,281,658	7,108,051
West North Central	25	2,839,137	4,119,466
South Atlantic	38	9,214,332	26,347,224
South Central	35	4,510,227	5,014,360
Mountain and Pacific	37	5,884,642	6,005,939
Total	352	$54,454,936	$67,501,025
Percent of change			+24.0

AN
EDITORIAL
SECTION
AUTOMATIC
HEAT

AUTOMATIC HEAT SECTION

• each requires a radically different type of oil burner • *yet ALL are prospects for Silent Glow*

Mrs. Jones is interested in a burner for her kitchen range. No easier way of making the sale than to offer a Silent Glow—a range burner tested and approved by Good Housekeeping Institute. If you've sold only power burners, maybe you think range burners are not worth bothering with. But note this—dealers have made over $3,500,000 on Silent Glow range burners during the past few years.

Mr. Smith is in the market for a burner for his home. Suppose he has a round boiler. Then you can recommend a Silent Glow Rotary—or a Model 1000—the new gun type burner with the flame Stabilizor, adapted for 1000 feet of steam or its equivalent. If a larger unit is needed, there is the Model G.

Mr. Brown represents still a third type of prospect. A big industrial job—32,000 square feet of steam. Easy enough to meet the specifications with the Silent Glow Mid-West line.

No job is too large—no job is too small when you handle Silent Glow Burners. You can go down one street and up the next and find a prospect in practically every home or building. Equally important, you never have to recommend a burner for an installation for which it was not intended and *hope* that it will work. The Silent Glow line is the most complete line of oil burners on the market; a burner for every purpose. And every one quality built throughout.

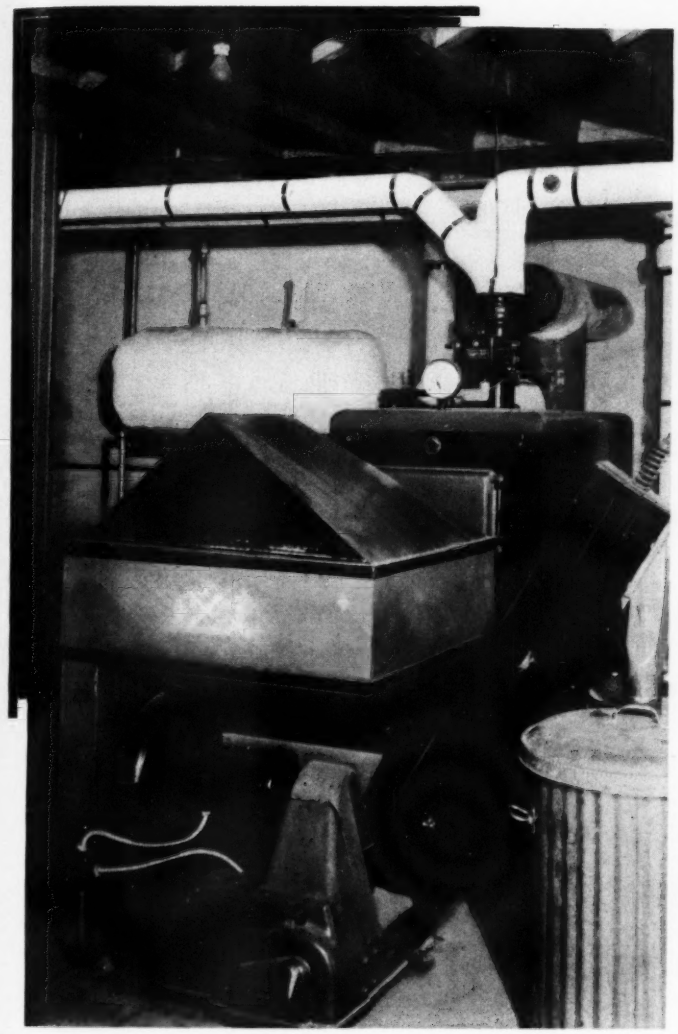
It pays to be on the Silent Glow bandwagon—99 out of 100 dealers who handled Silent Glow in 1931 are still selling them. That means only one thing. They are making money. If you would like to know how they do it, write today for particulars on the Silent Glow franchise.

THE SILENT GLOW
OIL BURNER CORPORATION
HARTFORD, CONN.

Boston **Chicago** **St. Paul**

Member National Electric Light Assn.
Member American Oil Burner Assn., Inc.
Member Oil Heating Institute
Member Distillate Burner Manufacturers Assn.

In Canada:
SILENT GLOW OIL BURNER CORP., LTD.
162 St. Catherine St., W., Montreal, P. Q.



This dealer has installed close to two hundred stokers in the last three years. The type of job done shows why there were two calls only for service

Sound Training for Stoker Sales

. . . as told to
RALPH H. BUTZ

"ACCORDING to our view," remarked the general manager of an eastern stoker sales and installation organization, "successful stoker merchandising is not to be measured by today's profits, but by the possibilities that the future holds in store for us. We have an iron-clad rule that no stoker is really sold unless it accomplishes satisfactorily the purpose that the owner had in mind when he purchased it. In other words, a faulty installation will not only cast a cloud over the dealer's ability but it will make it increasingly difficult to sell other prospects.

"During the past three years we have installed close to two hundred stokers. The best evidence I can give that these are functioning satisfactorily is in the number of service calls we have received during the past winter. We had just two calls for service, both of which required small replacement parts, and both of these stokers were soon operating perfectly."

The organization is at present maintaining three sales offices and the salesmen for the various territories are under the supervision of branch managers, who are in turn under the supervision of the general manager. These sales offices are not used as display rooms because it is felt that stokers should be demonstrated under actual operating conditions rather than to merely explain the theory of their operation.

"For instance," explained the executive, "when we have a prospect we study the heating system in use in that home, as well as the home itself, and then we take that prospect to another home where the conditions are very similar and show him the stoker in operation. At the same time, this gives the prospect an opportunity to talk with the owner. A satisfied customer is the best advertisement, and that applies to stokers as well as to

AUTOMATIC HEAT SECTION

any other appliance. Unless the dealer can take his prospects to his customers and abide by their recommendations, he is not likely to develop a growing business."

OCCASIONAL TRIAL INSTALLATIONS

What does this firm do with the prospect who is a confirmed skeptic, who is willing to buy after he is shown, but who will not sign the dotted line or invest a penny until he is convinced

"Our method of handling this type of prospect," he continued, "must necessarily vary according to the circumstances. If we know that the man is honest and reliable, that he has the means to make it worth our while to convince him, we are willing to do our part. We had two of these customers during the past year. In both cases we installed a stoker on trial, with the understanding that if it didn't do all we claimed for it, we would remove it. In both instances the trial period was sufficient to prove our claims, and the jobs were paid for within sixty days. I would say, however, that we don't as a rule go in for that sort of thing. It is only when we are challenged to make good by a prospect, who also has the ability to make good on his part, that we are tempted to make trial installations."

This territory being in close proximity to an anthracite coal district, the company has concentrated all its efforts upon the stoker for automatic heating purposes, believing that with the low cost of small sizes of anthracite it is an economical and satisfactory device for automatic heat.

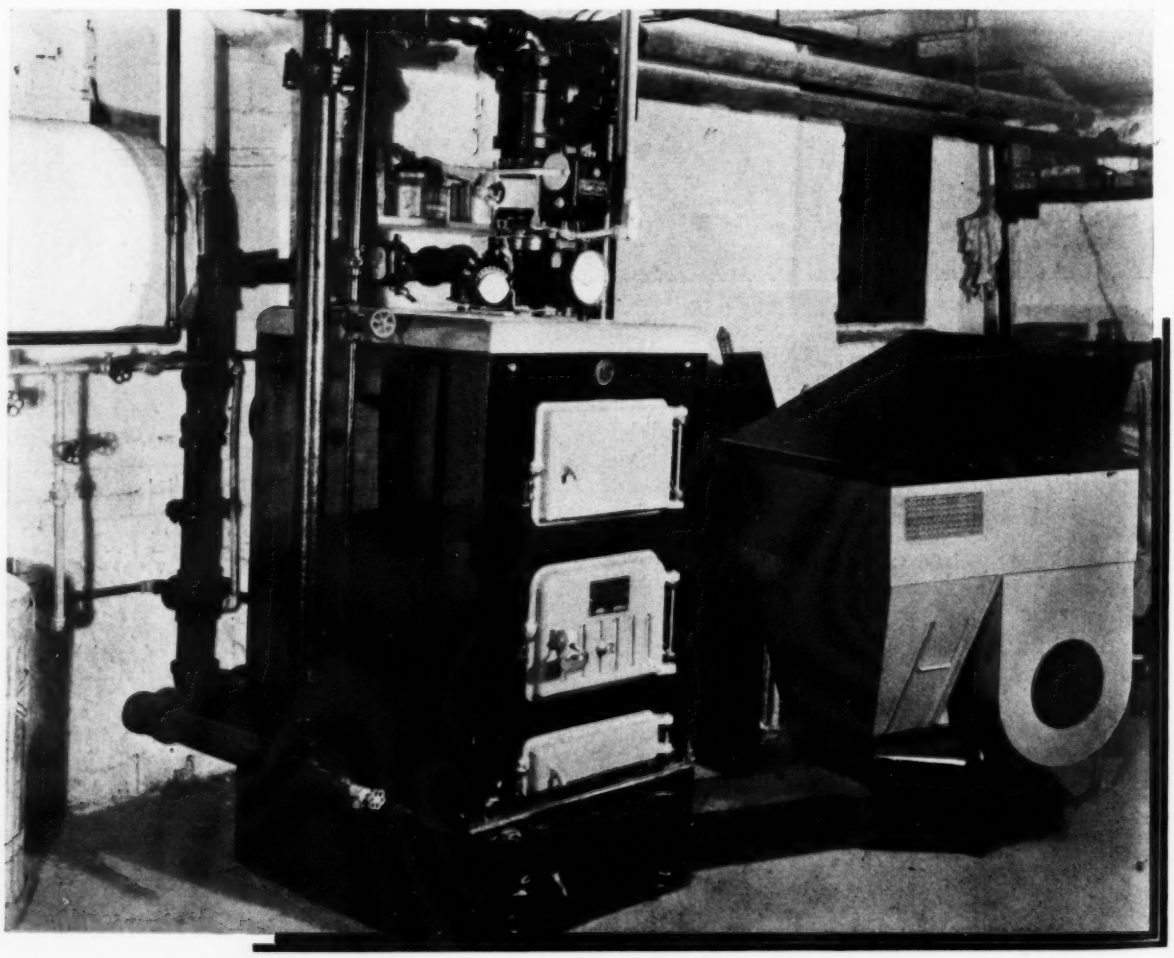
"Can prospects be developed through the use of newspaper advertising?" I asked.

"No," he answered, "at least not for us. We have used newspaper copy at various times, and in no instance did we receive a direct inquiry as a result of the advertising. We have found that the only way to get prospects is to go out and find them. A good salesman making at least ten first calls each day will soon develop a prospect list that will keep him busy."

PUTTING SALESMEN ON PRODUCTION BASIS

With the exception of the managers, the salesmen are employed on a commission basis. This does not mean that the firm will employ any salesman who is willing

Once in a while a prospect wants the stoker, but won't sign up. If he's "right" they make a trial installation—and no such job has yet been taken out



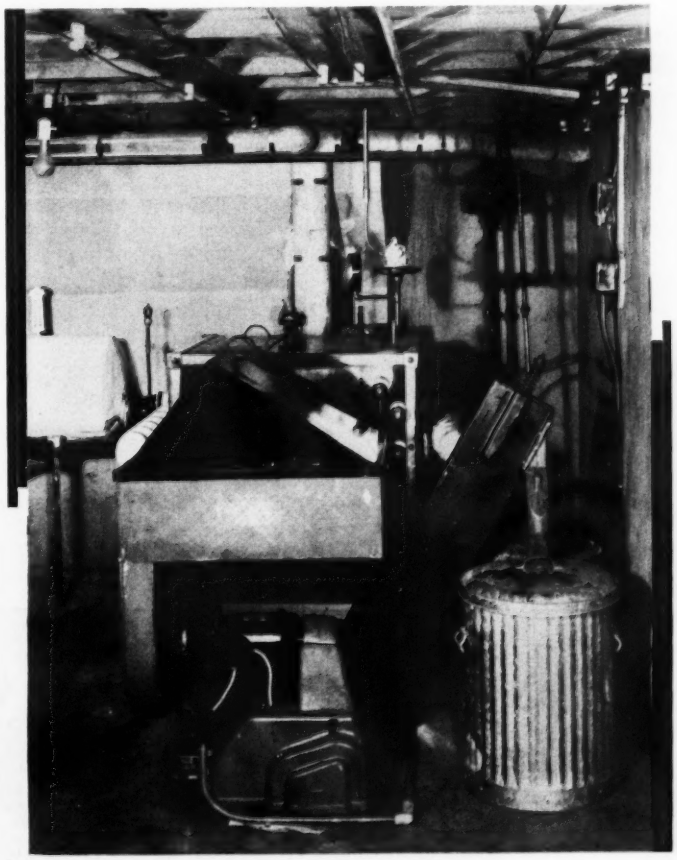
to go out and "leg it" on a commission basis. Quite the contrary is true, for every new man taken on represents a considerable investment of time and effort. Applicants who are mechanically inclined and who have enough tenacity to stick to a prospect are the types that are selected. Given this kind of men, the management will go to great lengths to develop them into combustion salesmen instead of mere canvassers.

The new man's first instruction covers the fundamentals of combustion engineering as applied to domestic heating requirements. After this he is trained to call on home owners and develop prospects. Every coal-burning boiler represents a possible stoker sale, provided it is possible to show economies that would make a stoker installation satisfactory. This is further qualified by the ability of the prospect to finance the installation. By analyzing his calls on this basis, the new salesman will soon learn to devote his time to real prospects instead of imaginary ones.

"The training of salesmen," said the general manager, "is placed upon a practical basis as soon as possible. The salesman with ambition would much rather absorb his instruction while working in the field than by studying stoker selling in a class room. When visiting prospects, a new man is accompanied by the manager or an experienced man, who teaches the beginning by showing him how objections are met and problems are solved. It is the only practical way of teaching a new man to stand on his own, and the man who is fitted for the work will learn rapidly.

"It is surprising to note how quickly men are able to handle prospects without assistance if their preliminary training has been well planned. In fact, the failure of salesmen may often be attributed to the wrong training methods, rather than to their lack of salesmanship.

When a stoker is installed it works—because this dealer will refuse a sale rather than take a chance on a faulty heating system



NO EXAGGERATED CLAIMS

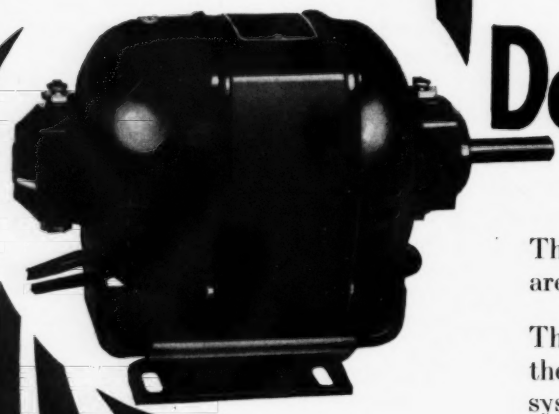
"There is another important feature that is sometimes overloked; to stick to the truth. This is impressed upon our salesmen to prevent them from promising things that are uncertain of being fulfilled. We make no attempt to sell stokers as a cure-all for defects that should be remedied before a stoker is installed. Insufficient or improperly placed radiation, undersized boilers, faulty chimneys, and other defects should be frankly pointed out to the customer instead of making him believe that a stoker will overcome these troubles, because such promises will only lead to grief later on. 'Stick to the truth' is our motto. An installation that does not prove satisfactory is far worse than losing a sale."

Under present conditions the company believes that a sound financing policy is beneficial in developing the maximum number of stoker sales. Its policy is flexible enough to make it possible to suit the requirements of each individual customer. As a general rule, the company requests a down payment of approximately 25 per cent of the cost, with the balance arranged for in monthly payments up to a time not exceeding eighteen months. However, before quoting long terms he assures himself that the home owner has a sufficient equity in the property to make the installation a safe investment.

The company has been one of the first dealers to recognize the immense field for sales promotion work among home owners as compared with the more limited field of industrial prospects. Stoker dealers have, as a rule, centered their efforts toward securing the larger installations and have neglected the possibilities in the domestic heating field. This firm, however, has taken the opposite view and, while not neglecting the industrial prospects, has trained its salesmen to contact every home owner who is a likely prospect for automatic heat.

"It is true," admitted this executive, "that industrial installations are desirable because they represent a good return for the salesman and the dealer, but it is also true that for every industrial prospect there may be fifty prospects among home owners. It would be foolish to neglect this business because our opportunities for development are with innumerable home owners who will eventually adopt automatic heat."

AUTOMATIC HEAT SECTION



Do You Know?

That a great majority of all Leland motors are used on electrical appliances?

That many of them go onto the very best of these devices, oil burners, stokers, water systems, refrigerators, etc?

The success of the Leland motors is due, primarily, to:

A continuous self-filtering lubricating system of extreme dependability.

A short-circuiting device of unquestioned durability. Test it against any design.

A simple but highly dependable brush-lifting mechanism that eliminates brush noise and wear.

A simple cradle-mounting that confines all transmitted noises within the frame structure.

A servicing plan on both standard and special designs that has proved satisfactory to users in all parts of the country.

Investigate the Leland line of brush-lifting motors with ventilating safety grids for use on stokers and oil burners, refrigerators and water systems, where quiet operation and freedom from transmitted noises are of importance.

A. C. Repulsion Induction
D. C. Compound Wound
A. C. Polyphase
Interchangeable Frames
Rating ⅓ to 3 H. P.

Canadian Address Toronto

The Leland Electric Co.
Dayton · Ohio · U.S.A

Cable Address "Lelect"

Leland Motors

This is what can happen to a basement when automatic heat is applied to the plant

An oil burner circular started this heating contractor on a career which proved to him that

Oil Burners Can Be Sold

By A. R. OWEN

TWO years ago, H. G. Catlow was in his plumbing and heating shop waiting for business to come in, when the postman brought a circular on oil burners. Mr. Catlow read the circular and was impressed with the idea of merchandising oil heat aggressively as conveyed in the literature before him.

The depression was already under way and few people were calling him on the phone to do repair work. He figured that the time was opportune to find out what chances a heating man had in the retail field, so he promptly opened a two-windowed showroom in the business section of Montclair, N. J. He hooked up an oil burner and heater combination on the sales floor so that the unit could be demonstrated in actual operation for prospects. The remainder of the floor and his two windows were given over to displays of plumbing and heating goods.

TWO BURNERS A WEEK

Mr. Catlow made the oil burner his leading specialty and went out after business. He has been averaging two oil burner sales weekly, or one hundred yearly, in addition to sales of remodeled bathrooms, kitchen sinks and other plumbing and heating products.

Oil burner sales average $500 each. Fifty thousand dollars yearly in oil burner sales is not bad when one considers that this plumbing and heating merchandiser was new to this job only two years ago. Two outside salesmen working on a ten per cent commission basis

AUTOMATIC HEAT SECTION

now assist him in building a volume of sales.

"It is only half as hard to sell an oil burner today as it was four or five years ago," said Mr. Catlow. "Formerly the dealer had a dual selling job on his hands when he went out to sell a burner. First he had to sell oil heat and then sell his particular burner. Today, oil heat is an accepted fact.

"The seller of an oil burner need no longer sell a prospect on the desirability of oil for heating purposes. People are now educated to its advantages. They know that oil heat is clean, convenient, healthful and comfortable; consequently, we do not stress these features in our sales talks.

USING HEATING KNOWLEDGE

"We find that the average prospect is mainly interested in installation efficiency. He wants to know whether the oil burner we are selling will produce the many advantages of oil heat that he has read and heard so much about. In most cases, the first question that is fired at us when we go to see a prospect is 'how can I be sure that the oil burner will heat my home after you install it?'

"This is where the plumbing and heating dealer has the advantage over other sellers of oil burners, and he should build on that advantage to make sales. The heating contractor not only understands oil burners but he understands heating systems and 'knowledge is power' if properly directed. When a prospect asks us how he can be assured of a satisfactory oil burner installation, we point to the fact that the work is done under the supervision of a qualified heating engineer. In other words, I contend that my membership in my craft enables me to qualify as an expert.

"If a prospect demurs at this I ask, 'Would you care to ride in a train behind an engineer who does not know the throttle from the smoke-stack?', 'Would you want to be operated on by a surgeon who could not produce a diploma from a medical college?', 'Would you care to be defended by a lawyer who never heard of Blackstone?' Of course, the prospect answers in the negative and it is then easy for me to swing with a verbal punch into, 'Well then, why trust the heating of your home to anyone but a qualified heating engineer?'

"This slant helps us sell many oil burners against the competition of oil burner retailers outside of our industry. The plumbing and heating contractor-dealer need no longer sell the idea of oil heat but he must sell the prospect on the fact that he will get an efficient installation. The mere fact that the contractor-dealer can show that he is an experienced and licensed member of his craft is enough to settle that argument in short order when it comes up.

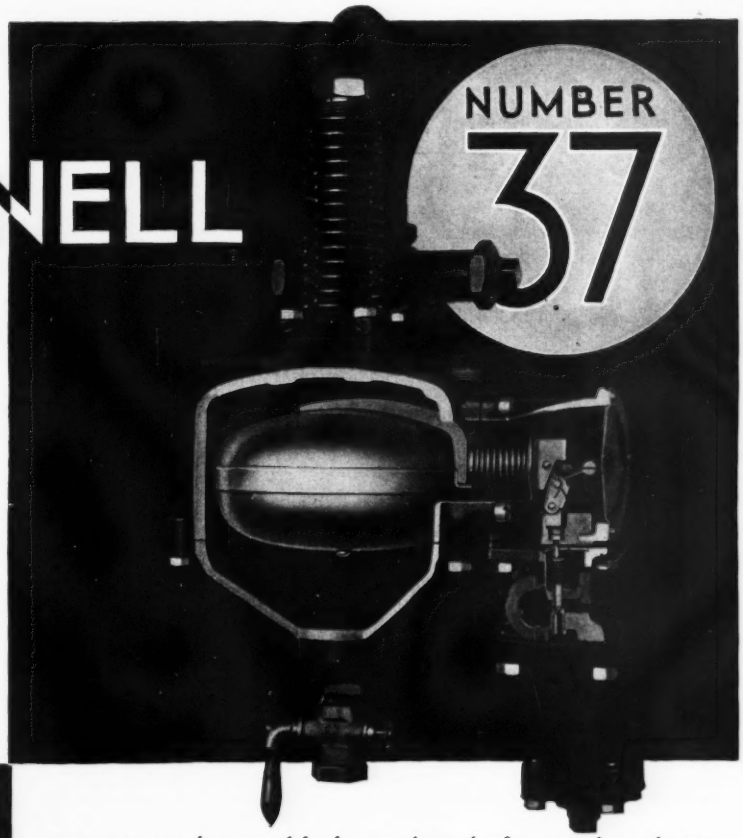
"We find that prospects are bringing installation efficiency to the foreground because there have been numer-

Another basement that underwent some radical changes after an oil burner of the type handled by Mr. Catlow had been installed

Announcing

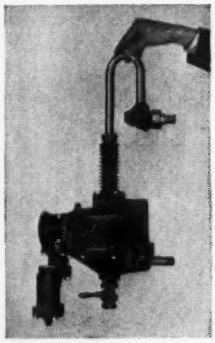
McDONNELL NUMBER 37

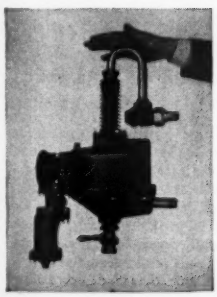
SAFETY FEEDER FOR SMALL BOILERS

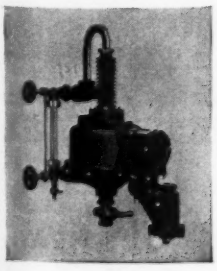


The reward of many years of

"DOING ONE THING WELL"







To install the feeder merely remove the water glass and gauge cocks from the boiler and install the feeder in the gauge glass tappings. The two upper illustrations opposite show how the goose-neck on the feeder is moved to fit all standard gauge glass lengths used on small boilers. After feeder is installed, gauge glass is installed *on feeder* as shown in the lower illustration. It is then a simple matter to connect water piping. No tapping is necessary. What once took hours, now takes minutes.

IN THIS NEW, but tested feeder, you have the first complete solution to the problem of automatic water level control for the thousands of boilers under 2500 feet capacity—

—at a price that you can get!

Study these four features. They mean satisfaction and profit for you. Remember that they are combined only in the McDonnell 37.

1- ***The cause of trouble is eliminated.*** Temperature at the feed valve never exceeds 120 degrees. This is far below the temperature at which lime and scale precipitates. Where there is no scale there can be no sticking or binding. The cool feed-valve is a tested feature of all No. 30 Series McDonnell Safety Feeders—the feature that has earned them a deserved reputation for unmatched dependability.

2- ***A new and exclusive quick hookup feature***—cuts installation time from hours to minutes, and therefore enables you to sell the feeder installed at a lower price than was ever before possible.

3- ***Can't fail to work properly.*** It is bound to function properly because it can't be installed incorrectly—because its float chamber *must* duplicate the conditions of the water gauge—and because the cut-off point is automatically located. Note the picture-story of this feature opposite.

4- ***Quickly adapted to oil-fired boilers***—by simply adding the No. 35 low water cut-off switch which can be applied in about two minutes.

Ask for new No. 37 circular describing this feeder in detail and containing the broadest guaranty ever placed on a feeder.

McDONNELL & MILLER
400 N. Michigan Ave., Chicago

McDONNELL PROTECTION

"Doing one M&M BOILER CONTROLS *thing well"*

AUTOMATIC HEAT SECTION

How the *new* Weil-McLain OIL BURNING BOILER *meets the new requirements of oil heating*

SCIENTIFIC COMBUSTION as applied to oil burning is now achieved to an unequalled degree in the new Weil-McLain Oil Burning Boiler. In this boiler (especially designed to work with oil burners in residential and medium sized installations) a *newly proportioned combustion chamber* assists the oil burner to attain more thorough combustion of oil. In designing this new combustion chamber, Weil-McLain increased the *diametric width* of the round fire pot to provide both an *extended hearth* and the *extra space* essential to maximum efficiency when burning oil. This special round fire pot with its extended hearth eliminates crowding of the oil burner into the narrow limits of the oblong fire chamber so often found in small square type boilers. It provides this boiler with extra space where extra space is most needed and *most effective.*

Retains Famous Fuel-Saving Features

In addition to this and other new features, Weil-McLain Oil Burning Boilers retain those famous tried and proved *fuel-saving* features long identified with all Weil-McLain Boilers:

Front Cross Section View 7 Series Boiler Showing Corrugated Heating Surfaces

The most effective heating surface in *any* flue is the *upper horizontal* portion. Note that the Weil-McLain Oil Burning Boiler has *wide* flue ways in which the *upper horizontal portion* is *many times greater* than less effective vertical surfaces. Note also that these upper horizontal surfaces are corrugated, like this ~~~, thus crowding in still more heat-absorbing surface where it is most effective.

CORRUGATIONS LIKE THIS~~~ INCREASE HEAT-UTILIZING SURFACES IN FLUES 30%: All vital heating surfaces in this new boiler are corrugated, like this ~~~, instead of flat, like this ———. This feature crowds more heat-absorbing surface into the same space—gives the boiler *more heat-absorbing ability without* extra size and *without extra cost.*

WIDE WATER CHANNELS GIVE QUICK RESPONSE: All water channels are liberal—particularly in the fire chamber section. This brings more water into the area of greatest heat concentration, assuring quick, free circulation which means *more heat quickly at less fuel cost,* when more heat is wanted.

LONG FIRE TRAVEL GUARDS AGAINST HEAT WASTE: An extra long, smooth flow fire travel, backward and forward beneath corrugated heating surfaces, eliminates short cuts to the chimney and enables the boiler to *utilize* more of the heat produced by the oil burner . . . saves fuel . . . *reduces fuel costs.*

WEIL-McLAIN COMPANY
General Offices: 641 W. Lake St., Chicago
NEW YORK OFFICES: 501 Fifth Avenue
Boiler Division: Michigan City, Indiana
Radiator Division: Erie, Pennsylvania

OTHER EXTRA VALUE FEATURES

Easily cleaned heating surfaces . . . Tappings for connecting external water heater . . . Insulation of silica wool between boiler and colorfully enameled steel jacket . . . Observation port for checking performance of oil burner . . . Provision for installation of safety control devices . . . Limit Control Tappings and Balanced Damper are other *extra value* and *extra convenience* features of this boiler. Write for free literature describing them in detail.

Weil-McLain
SCIENTIFIC COMBUSTION
BOILERS
FIGHT FUEL WASTE AND DELIVER MORE HEAT

ous faulty installations made and people talk about such things. We have replaced a number of badly installed good burners or better installed bad burners. Only the other day we pulled out a burner and installed one of ours for $800. The prospect was glad to pay it. He knew the advantages of oil heat but he never had experienced them because the oil burner he bought was inadequate and hooked up to an inefficient heating system.

A SALE BY REFUSAL

"This man is typical of the 'Show me, I'm from Missouri' prospect met so often today when prospecting for oil burner sales. The crystallization of this attitude in connection with oil burner merchandising, namely the prospect's demand for a satisfactory installation before signing the order, is a good opening for the qualified heating engineer because in the final analysis, he is the only one who can give assurance that a job will operate efficiently after installation.

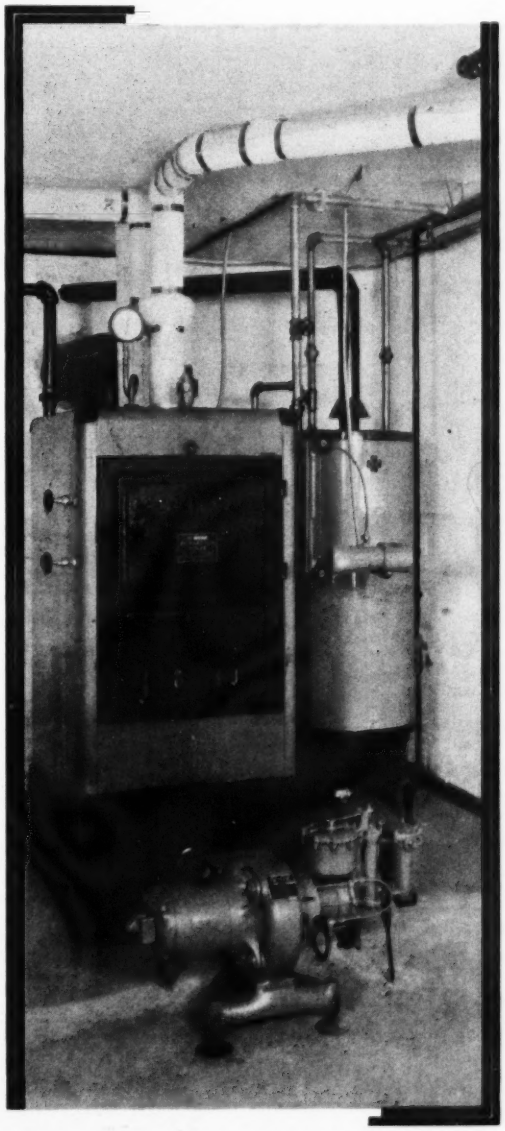
"Before signing up a prospect, I inspect the old heating plant thoroughly, recommending changes, if any. I take the prospect with me when I make the check-over because I want him to feel that the job will be in expert hands. All of this furthers the qualified heating engineer idea. If a heating system is in bad shape, we go into details regarding the defects and if the prospect will not allow us to make the necessary changes we refuse to sell the burner. This attitude is helpful to sales. It wins confidence. On numerous occasions we have sold burners merely by adhering to this stand.

For example, a typical case of this kind occurred last spring. We canvassed a home owner who was sold on oil heat although not on our burner, for the reason that we asked him to spend $150 on his old heating plant to put it in first-class shape before we would install oil heat. He countered with the proposition that he would consider our burner along with our competitors' if we would make the installation in the old heating system as is. We turned 'thumbs down' on his offer, insisting courteously that no form of automatic heat would operate efficiently in his present house heating plant.

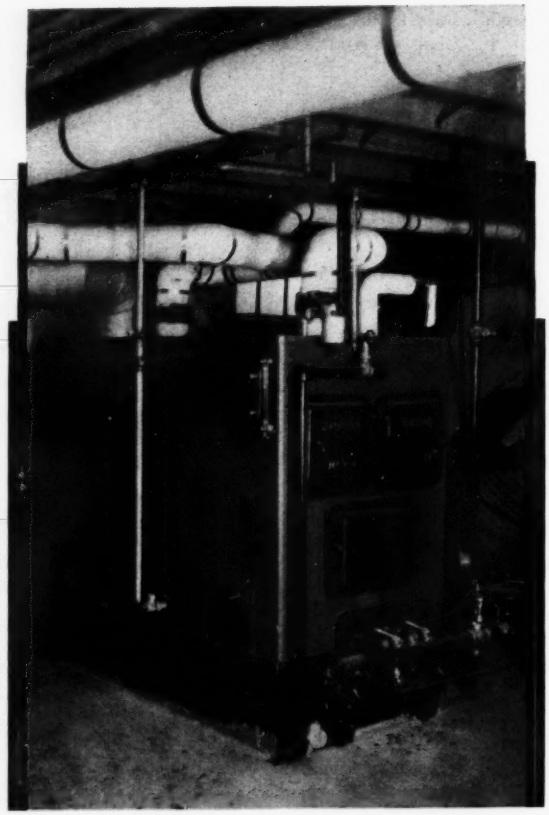
"A few days later he called up ordering the installation with our advised changes, although three other dealers were under-quoting us on the burner and willing to install without making any changes. He told me that our flat refusal to profit on an oil burner sale unless the heating plant was in tiptop shape was the thing that sold him our product because he realized that we were not willing to take chances with results.

"I estimate that we have replaced a dozen burners during the past year, units that were not giving satisfaction because they had been installed in poor heating plants. In most cases these installations were *not* made by plumbing and heating contractors. That is why we were able to sell replacements to these home owners. We stressed the qualified heating engineer idea and the importance of having tested experts make oil heat installations. The heating contractor who installs a burner without putting the old heating plant in good shape is giving a black-eye to our industry as well as to oil heat. The plumbing and heating contractor-dealer is the logical man to sell oil burners and he should do everything to further this idea to the public. Incidentally, he will find that sales resistance to his efforts is decreasing all the time. Oil heat need no longer be sold. It has arrived. Now it is necessary to sell qualified oil-heating installations. The plumbing and heating contractor is in the driver's seat in this regard. It is up to him to drive with a selling plan geared to installation efficiency.

"Another factor that is lowering sales resistance on oil burners is the dropping of the price level. One woman I went to see one evening told me she could not afford oil heat although she would like to have it. After we got talking I found that a dealer had quoted her $1,400 to oil-heat her home six years ago and she still assumed the oil burner to be a product only for the rich. When I quoted $700 for a tiptop installation she signed on the dotted line. She needed only the new price to be sold."



This basement wasn't modernized—but its walls were painted and its general cleanliness raised many degrees



This shows one type of conversion gas burner installation in a rectangular boiler. While there is no reference to this particular job in this article, the fundamentals outlined are applicable to it as well as all other heating installations

How Installations Are Made With Conversion Gas Burners

Considerations in Selecting units are outlined by C. GEORGE SEGELER

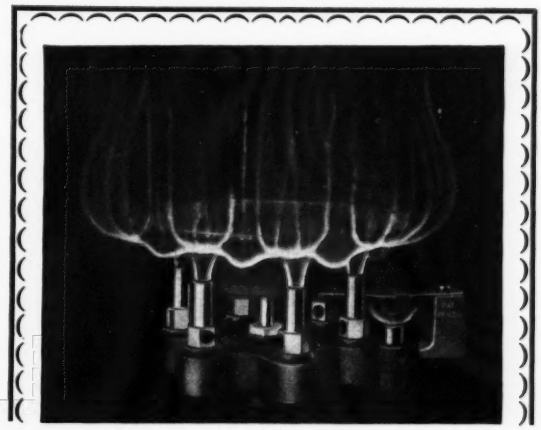
THE application of gas can be made through two general methods, namely (1) by the use of equipment specially designed for gas burning, and (2) by installing gas burners in existing equipment intended for some other fuel. Considerable information has been published on the use of gas with specially-designed equipment, but there has been comparatively little on the automatic gas burner used for converting existing equipment to gas operation.

The units for accomplishing this purpose are termed *conversion burners*. Since these burners are really gas burners fitted with the same equipment and controls used with boilers or furnaces designed for gas operation, it is to be regretted that the term *conversion burner* has found acceptance.

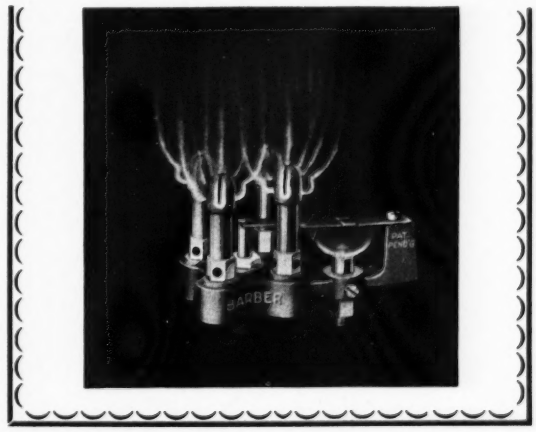
The published papers on automatic gas burners have generally been written from the standpoint of the operating cost. Although it is true that greater care is necessary in the selection of conversion burners where the gas cost is high, it is also true that automatic gas burners can and are being successfully used in territories in which gas-designed equipment is used. In the past, statements to the effect that automatic gas burners could be made as efficient as gas-designed equipment have often been questioned, but as the author will endeavor to show later, this is sometimes the case if sufficient care is exercised in selecting the jobs converted and proper installation and adjustment of the burner is made afterwards.

Where automatic gas burners are to be used in existing buildings, the installed equipment must be adequate, it must not be too old, and it must be of a type for which a fairly efficient conversion can be made.

Although there are exceptions, small boilers usually are less satisfactory than large boilers for conversion



SELL *the outstanding appeal* *in* GAS HEAT



The Barber Slotted Cap and Bell Baffle Burners *with* and *without* Safety Pilot Control, incorporate such features as to enable you to close those of your prospects who in the past have always been just a little short of being "sold" on Gas Heat.

You have had them no doubt, they who had a little resistance here or there, and while you always felt they were about ready to buy, they still held off and for some reason or other you could not close them.

Go back to them now and tell them all about Barber Slotted Cap and Bell Baffle Burners. Now you've got "something" that will help you close that business which has been just out of your reach.

Explain all of their fine exclusive features; about the degree of safety effected; about their noiseless operation; about their trouble-proof construction which does away with servicing and adjusting and the most clinching of all sales features, their economy of operation.

You can overcome every objection with these burners, because their design incorporates features that reach a new high standard in burner construction. And they are backed by a reputation that has been earned over fourteen years and it is recognized as the outstanding reputation in this field.

Write for the Barber story. Let us tell you how we help you to sell Barber Gas Burners, and let us tell you why so many manufacturers have turned to Barber for the burners they are using in their gas appliances.

BARBER
Automatic Jet Gas
BURNERS

THE BARBER GAS BURNER CO., 3702 SUPERIOR AVE., CLEVELAND, OHIO

AUTOMATIC HEAT SECTION

Spencer Sales Starter Plan

This new Electrical Display Boiler is the central feature of another step in the Spencer Sales Starter Plan. Following one of the most sensational newspaper campaigns in the history of the heating industry, we offer a complete program for continuing the increases Spencer Boiler sales show over 1931, (our best year). A new folder tells how you can share in these gains.

Write for your copy today

SPENCER HEATER COMPANY, Williamsport, Pa.
Division of Cord Corporation
The Spencer Foundry Company, Ltd., Toronto, Ontario, Canada

SPENCER
Magazine Feed
BOILERS
for steam, vapor or hot water

to gas operation. This is particularly true of small round boilers without intermediate sections. Such a statement in no way reflects upon any manufacturer of coal-fired boilers. It does not indicate that such a boiler is not efficient when used with coal, but merely that the construction is such that it is not well adapted for gas.

Lest any misunderstanding arise from the foregoing reference to the difficulties attendant upon adapting the automatic gas burner to the small coal boiler, it should be noted that there are also factors other than size which may limit the use of gas burners. Space will not permit enumerating all of them, but the principal points are as follows:

1. There is a difference in boiler construction between units intended for anthracite and bituminous coal, principally based on draft consideration.
2. Age of the boiler, especially when hard water is used.
3. Capacity of the boiler compared to the heating requirements of the house.
4. The chimney may be a factor, since flues too small for good coal operation may often be entirely satisfactory for oil or gas burning. Outside exposed chimneys with unlined flues are liable to be unsatisfactory.

In this article, which was presented at the semi-annual meeting of the American Society of Heating and Ventilating Engineers in Milwaukee, last month, Mr. Segeler states that the factors presented have raised some question in the minds of the gas engineers on the advisability of carrying out too great a degree of refinement in the calculation of building heat losses

With so many different types and styles of burners available, the question arises as to which should be selected. There seem to be four principal factors involved. *First,* that type of burner should be selected which would require the smallest investment consistent with safety, efficiency and satisfactory service. *Second,* the burner selected should cause the least possible change in existing equipment, so that the owner would not feel that he was permanently bound to gas fuel and so that the working principle of the unit would be most readily understood. *Third,* the unit should possess a neat appearance when installed and should have a low cost for installation and above all, a low cost for servicing. *Fourth,* the unit should be such that the owner receives an efficient and safe device.

HOW TO SIZE BURNERS

Considerable experience is required to satisfactorily install an automatic gas burner in existing equipment. With gas-designed equipment, it is merely necessary to follow instructions for assembly to be sure of good operation. This is well within the ability of any capable mechanic. For the installation of automatic burners, on the other hand, it is not only a question of following certain instruction rules, but it is also necessary to have a mechanic with sufficient knowledge of gas combustion and heating methods to be able to make the necessary changes in the original equipment so that with the burner it will make an efficient and safe installation.

In order that the automatic gas burner might be given consideration, the *A. G. A.* General Requirements Committee has approved the issuance of the Installation Requirements for Conversion Burners. These are requirements which, when followed, will make the finished installation comparable with gas-designed equipment as far as it is possible to do so with this equipment. These requirements are divided into several parts, covering the inspection and preparation of the existing heating plant, with particular reference to chimney flues and proper size of flue pipe. They provide that no baffles shall be installed in existing equipment which will interfere with proper combustion of gas, and recommend that the section of flue pipe between the outlet of the appliance and the draft hood shall be sized on the basis of 1 sq. in. of area for each 7,500 Btu. per hour input into the unit. The second part deals with the actual installation of burners and controls. In general, the same type and number of controls are needed for automatic gas burners as for gas-designed equipment. This includes pilots, main shut-off valves, gas pressure regulator, necessary limiting devices, etc. The third part deals with the gas piping and meter arrangement, and a final section is devoted to inspections and test. This material is available on application from the *American Gas Association.*

The Requirements represent minimum standards for the installation of automatic gas burners. They have been prepared in the interest of the public, to ensure safe and economical utilization of gas. Naturally, there are companies whose practices will go beyond these minimum standards and will thus be able to reach the highest levels of efficiency and good service. Most of the recommendations in the Installation Requirements are sufficiently definite that they require practically no further interpretation. There are some which have been deliberately left general, because of variations in local practice.

HIGHER THERMAL EFFICIENCIES

Most important of these is the method for sizing automatic gas burners to fit a given installation. The *A. G. A.* practice is based on first estimating the hourly heat loss of the house, and then providing a sufficiently high heat input per hour to the unit to take care of the following three points:

1. Efficiency of the unit.
2. Heat lost from risers, piping and leaders and thus not delivered to the rooms.
3. Extra capacity for quick starting under thermostatic control.

The *A. G. A.* long ago adopted a standard practice of sizing boilers up to 500 sq. ft. of installed equivalent

AUTOMATIC HEAT

heating surface (radiation) in the house on a basis of 56 per cent more boiler capacity than standing heating surface. The excess capacity decreases up to 4,000 sq. ft. of installed heating surface for which the figure is 40 per cent. In dealing with automatic gas burners, it has been suggested that a slightly smaller excess capacity can be satisfactorily used. The sizing can be done by multiplying the hourly heat loss of the house by the factors given in Table 1.

WORK OUT DETAILS FOR LARGE BOILERS

In converting large boilers it is advisable to work out the details of the installation rather than to depend on tabular factors for estimating the gas required. Continuously-operating boilers, boilers for factories, clubs, etc., may have special requirements for quick pick-up, or the piping arrangements may be such that empirical factors are not as satisfactory. However, it is not possible to cover the details of such situations in the short space of this paper. The general rule can be applied that the excess capacity may be reduced as the boiler size increases.

It has been suggested that the proper operating efficiency for automatic gas burners be obtained by depending upon a flue collar or properly-sized flue outlet to provide the necessary baffling effect rather than using

Table 1—Factors for Sizing Boilers

Installed Heating Surface (Square Feet)		Factor	For Calculating Required Gas Input, Multiply Hourly Btu Loss (75% by Efficiency Assumed)
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200	350	1.58	2.11
250	400	1.57	2.09
300	470	1.53	2.04
400	640	1.50	2.00
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700	1100	1.38	1.83

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SECURE HIGHER THERMAL EFFICIENCIES

These are relatively broad requirements and some, interested in securing higher thermal efficiencies, would want to impose further restrictions. For example, by using a smaller flue opening and reducing the oxygen content of the flue gases to the minimum figure, the thermal efficiency can be increased slightly. According to the principles of operating gas appliances, there must be no carbon monoxide in the flue gases at any time. An ordinary flue gas analysis by the Orsat method will not be sufficiently accurate to use as a test of compliance with the requirements for absence of carbon monoxide. In coal or oil-burning appliances, where unbroken flue connections are used, it would not be practical, and probably would be unnecessary, to attempt to restrict the carbon monoxide content of the flue gases to the same degree required for gas-burning appliances. The limit of carbon monoxide permissible for gas-designed central heating appliances is not more than 0.04 per cent in an air-free sample of the flue products. There are portable types of carbon monoxide indicators and detectors which give very quick determinations of carbon monoxide without going through the complications of an Orsat analysis. By such methods, efficiencies can be brought to high levels. In fact, under the conditions of a series of tests run by a well-known university laboratory, the efficiency of converted systems was found to be on a par with that of gas-designed equipment.

On the other hand, there are cases, especially in territories where natural gas is available at a low rate, in which it is not necessary to make an accurate heat loss estimate of the house to check the installed heating surface to test converted systems, simply because the savings in fuel resulting do not warrant it.

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> Assume that a house having an hourly heat loss of 100,000 Btu., designed for an outside temperature of 0 deg. Fahr. and an inside temperature of 70 deg. Fahr., were operated continuously through a period of zero days. That is to say, the house would lose
>
> $$100{,}000 \times 24 = 2{,}400{,}000 \text{ Btu.}$$
>
> each day. On a zero day there are 65 degree days; consequently, the amount of fuel required to heat this house on a 100 per cent efficiency basis would be 370 Btu. per degree day per 1,000 Btu. hourly loss from the house.

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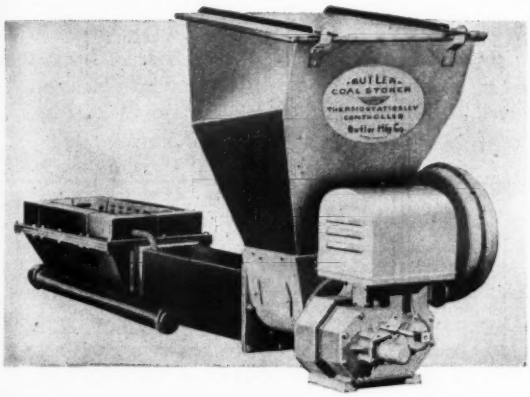

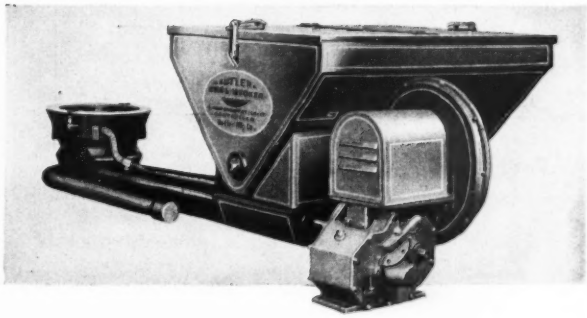

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heating surface (radiation) in the house on a basis of 56 per cent more boiler capacity than standing heating surface. The excess capacity decreases up to 4,000 sq. ft. of installed heating surface for which the figure is 40 per cent. In dealing with automatic gas burners, it has been suggested that a slightly smaller excess capacity can be satisfactorily used. The sizing can be done by multiplying the hourly heat loss of the house by the factors given in Table 1.

WORK OUT DETAILS FOR LARGE BOILERS

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AUTOMATIC HEAT SECTION

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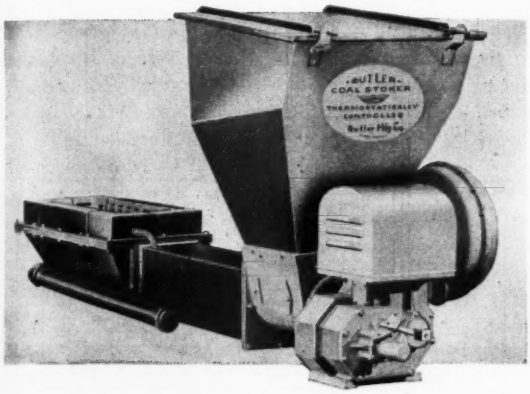

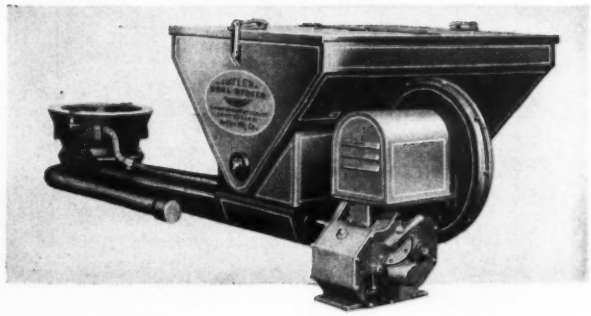

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filtration through glass and doors, walls, roof and floor. On the right of the illustration are tabulated the results of a survey of gas-fired houses made in 1930 by the author in an attempt to ascertain the percentage of heat lost through the various parts of the house. The houses were measured by the methods given in the A. S. H. V. E. GUIDE, and the percentages tabulated and averaged. The input in Btu. delivered by the gas is given for various seasonal efficiencies on the basis of units of 1,000 Btu.

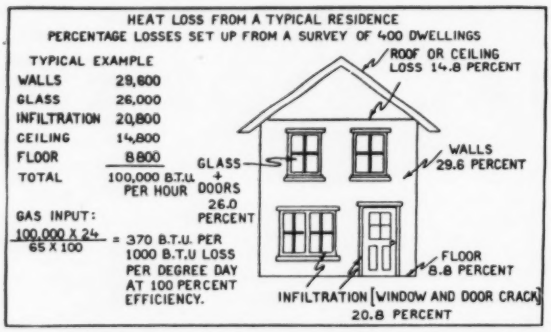
HEAT LOSS FROM A TYPICAL RESIDENCE
PERCENTAGE LOSSES SET UP FROM A SURVEY OF 400 DWELLINGS
TYPICAL EXAMPLE
WALLS 29,600
GLASS 26,000
INFILTRATION 20,800
CEILING 14,800
FLOOR 8800
TOTAL 100,000 B.T.U. PER HOUR
GAS INPUT:
100,000 X 24 / 65 X 100 = 370 B.T.U. PER 1000 B.T.U LOSS PER DEGREE DAY AT 100 PERCENT EFFICIENCY.
ROOF OR CEILING LOSS 14.8 PERCENT
WALLS 29.6 PERCENT
GLASS & DOORS 26.0 PERCENT
FLOOR 8.8 PERCENT
INFILTRATION (WINDOW AND DOOR CRACK) 20.8 PERCENT

Fig. 1 — This illustrates the ratio of output to input with houses according to the methods used in this paper

loss per hour from the building per degree day.

The actual results obtained from the present survey of 700 private residences averaged as follows:

Type of Installation	*Btu. per degree day per* 1000 *Btu. hourly heat loss from the house*
Gas-designed hot water boilers	404
Gas-designed steam boilers	445
Converted hot water boilers	452
Converted steam boilers	503

These figures show overall seasonal heating efficiencies from a maximum of 91.6 per cent to a minimum of 73.5 per cent. They also show that the overall results of hot water equipment are 10 per cent better than steam

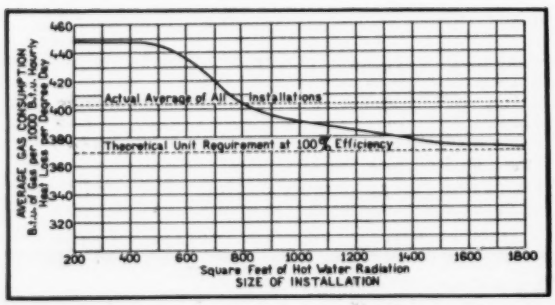
AVERAGE GAS CONSUMPTION
B.t.u. of Gas per 1000 B.t.u. Hourly Heat Loss per Degree Day
Actual Average of All Installations
Theoretical Unit Requirement at 100% Efficiency
Square Feet of Hot Water Radiation
SIZE OF INSTALLATION

Fig. 2—Here are unit gas requirements for heating residences with gas-designed hot water boilers

equipment and that the difference between the average efficiency of all gas-designed versus converted equipment was about 12 per cent in favor of the gas-designed equipment.

Fig. 2 shows the relationship between the size of the installation and the average gas consumption, expressed in Btu. of gas required for each 1,000 Btu. hourly heat loss from the building, figured in accordance with the methods given in the A. S. H. V. E. GUIDE, per degree day. This figure refers to the results obtained for gas-designed hot water boilers. These data are all for private residences. As the size of the job increases the unit gas requirement seems to decrease.

Fig. 3 is a similar plot based on gas-designed steam boilers. Fig. 4 is another similar plot based on converted hot water boilers.

In all of these three figures, it appears that larger installations were more efficient than smaller ones. Perhaps there is some justification for this interpretation, but there are some other points to consider. For the moment, it may be assumed that these charts represent the actual averages of a number of installations in the various size groups plotted.

When the lists of jobs were studied in detail in any one size class, it was found that individual installations showed extremely wide differences in efficiency. It showed that there was a small group of gas-designed

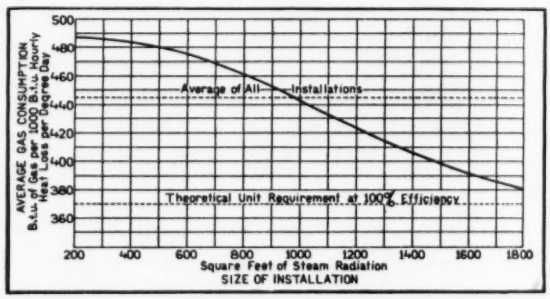
AVERAGE GAS CONSUMPTION
B.t.u. of Gas per 1000 B.t.u. Hourly Heat Loss per Degree Day
Average of All Installations
Theoretical Unit Requirement at 100% Efficiency
Square Feet of Steam Radiation
SIZE OF INSTALLATION

Fig. 3 — Unit gas requirements for heating residences with gas-designed steam boilers are shown here

jobs that were better than the best of the conversions and it also showed that a small group of converted installations was less efficient than the least efficient of the gas-equipment. The majority of the jobs was on a par as far as efficiency is concerned; the 12 per cent difference in average efficiency was largely caused by the installations which fell into the highest and lowest groups.

Fig. 5 illustrates the range of values obtained in this study. It can be seen readily how the averages worked out favorably to the gas-designed equipment even though there was a large number of installations in each class which yielded overlapping unit figures. Eliminating freaks, the worst of the converted installations averaged about 558 Btu. per degree day per 1,000 Btu. hourly loss from the building, as contrasted with 525 for the worst of the gas-designed.

The extraordinary part of these data was the unit figures obtained from the best of the installations. The best of the gas-designed jobs show about 250 Btu. per degree day per 1,000 Btu. hourly heat loss from the building, and the best of the converted installations about 274 Btu. Taking the two unit figures just mentioned as an example, they indicate that the overall seasonal thermal efficiencies were 140 per cent and 150 per cent respectively. In other words, the theoretical heat losses,

calculated according to recognized principles, and making due allowance for every factor which was known to be involved, were found to be one and one-half times as great as the heat input furnished by the gas.

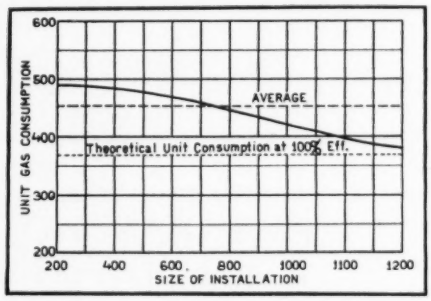

Fig. 4 — This chart shows unit gas requirements for heating residences with automatic gas burners in water boilers

The practice followed by the engineers of the gas companies who contributed the data used in this paper is to draw up complete data sheets showing the hourly heat loss of each house. These calculations are made strictly in accordance with the methods developed by the Society and published in THE GUIDE. The fuel consumption is metered separately from the other uses for gas in these houses, and it is reasonable to assume that the meter accuracy is better than ± per cent. The Btu. value of gas, although it fluctuates somewhat, is averaged by the gas companies and it was these monthly average figures of Btu. input which were correlated with the heat loss of the house. It was expected that a reasonably close check could be obtained between the input in gas Btu. and the seasonal heat loss of the house.

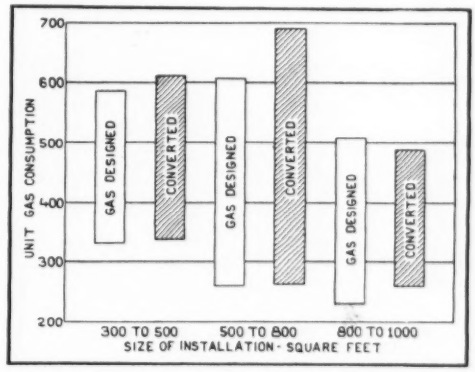

Fig. 5—This indicates the range of unit gas consumptions for gas-designed and converted hot water boilers

So much was expected, but actually the results turned out as has been indicated, namely that there was no very close check between the input and the output of houses, and that it was unwise to employ heat loss calculations on buildings as a basis for estimating the efficiency of heating systems.

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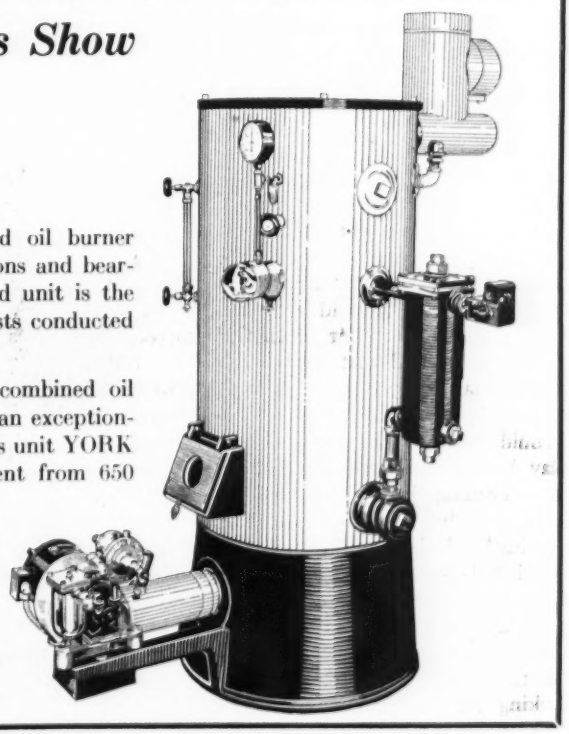
Tests Conducted by Dealers Show An Efficiency of

87%

Here is a really remarkable oil burning boiler and oil burner combined. Built according to A. S. M. E. specifications and bearing the Hartford Stamp of Approval. This combined unit is the result of thousands of oil burner installations and tests conducted over a period of thirteen years.

For the first time in the history of the industry a combined oil burner and boiler unit is offered at a price that affords an exceptionally strong appeal to the consumer. In addition to this unit YORK manufactures a complete line of oil burning equipment from 650 feet of radiation to any size industrial equipment.

Here is your opportunity to sell an efficient burner-boiler unit and make two profits instead of one. Write now for prices and descriptive matter!



YORK OIL BURNER CO., Inc.
YORK PA.

"The thermostat was located on an inside wall, on the west side of the room, in back of the front door"

First, the house would overheat and then it would become uncomfortably chilly for apparently no good reason. Earl Brown analyzes the conditions and tells how, in this case,

Relocation of Thermostat Solves Temperature Control Trouble Job

AN experience concerned with what happens when the wall behind the thermostat is either warmer or cooler than the room air was thrust upon me by my wife. She had accepted an invitation for us to go to Merlins to play bridge, the invitation having been given partially because my wife had told Mrs. Merlin that I was a heating engineer who spent much time correcting troubles. Mrs. Merlin said that they had called in about every heating man in town but no one had located their trouble, so wouldn't we come over to play bridge and perhaps I could see what was wrong. I did not see how we could play bridge and fix a bum heating system during the same evening, but we went.

Judging by the way Mrs. Merlin introduced me to her husband, I saw she expected me to wave a magic wand and their heating troubles would be over. After I became acquainted with him he said:

"It does not seem fair to invite you to our home and then ask for professional advice. You have enough grief during the day time without having to spend the evening looking for trouble."

"Oh, I don't mind. What seems to be your trouble?"

"You came at a good time to see what happens. We are now in the midst of one of our little roasting spells. The thermometer shows 70 deg. Fahr. but it is almost 80 deg. Fahr. in here. I'm a warm-blooded man and such temperatures are positively sickening to me."

"It is much too warm in here. Where is your thermometer?"

"On the thermostat. This system is actually 'spooky.' You know it was a nice, bright sunny day today, just a little below freezing, I think, but the whole house was too cool all afternoon even though the thermometer showed 70 deg. Fahr. all of the time."

"Were all the rooms about the same?"

"I did not check the temperatures but it must have been 65 deg. Fahr. or lower in the rear of the house while the front part which faces west and was therefore in the sun, was a little warmer. This evening with the sun down and a strong northwest wind blowing, we are too hot. At no time, though, does the thermometer scarcely move from 70 deg. Fahr."

My host showed me through the house. It was a four room cottage, with all the rooms on one floor, as shown in Fig. 1. It was a hot water system using exposed radiators and was heated with gas The thermostat was located on an inside wall, on the west side of the room in back of the front door, as shown in Fig. 1 and about 12 in. from the outside wall. There were faint dust marks along the door trim adjacent to the thermostat. As soon as I noticed these I held my hand over one of the marks. There was a perceptible leakage of cold air into the room. When I observed this I was sure the trouble was caused by the wall temperature.

"Your thermostat is improperly located, is my opinion, Mr. Merlin."

"I thought you might say that."

"Why?"

"After every one else had tried to tell me what was wrong I started working on the system myself. In doing so I noticed the leakage you just felt and reasoned that it might be the cause of the trouble on cold days but of course it would not be on sunny days. Anyway I had

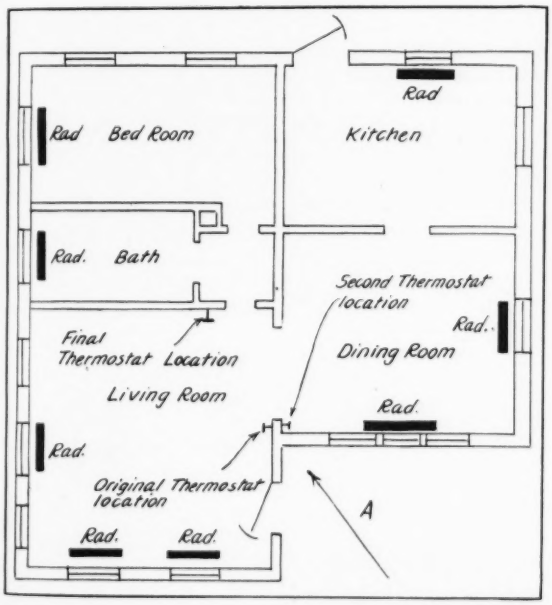


Fig. 1—This is a plan of the building showing the original, second and final locations of the thermostat

the thermostat temporarily moved to the other side of the wall in the dining room. That did not help one bit. Then I noticed that the leakage on the living room side was all below the thermostat so I decided my hunch was all wrong and had the thermostat moved to its original location."

"In spite of your experience I still believe that the whole trouble is in your thermostat location. Right now, with a strong northwest wind blowing, cold air is leaking into the living room around the trim of this door. I'll admit that the cold air is not striking the thermostat, but nevertheless the leakage shows that your wall must be porous or air wouldn't come in. Since cold air is

AUTOMATIC HEAT SECTION

TEEPLE SPECIALIZED GAS CONTROLS

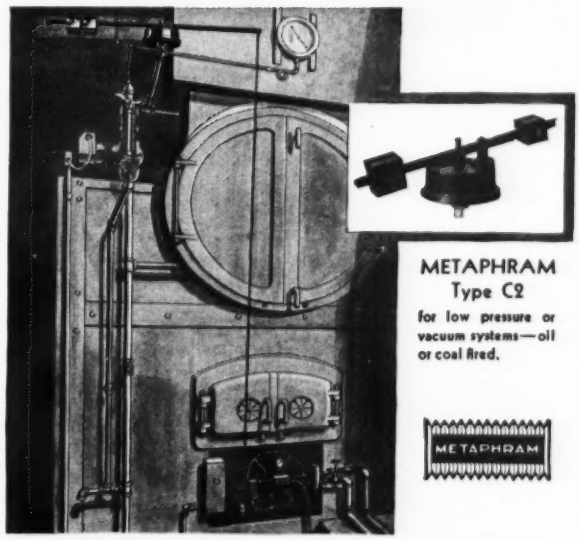
The highest type of controls for small gas boilers

Write for literature and prices

L. R. TEEPLE CO.
PORTLAND, OREGON

TEEPLE SPECIALIZED GAS CONTROLS

THROUGHOUT THE WORLD TEEPLE SPECIALIZED STOKER CONTROLS OPERATE THE FAMOUS IRON FIREMAN . . . THE MACHINE THAT MADE COAL AN AUTOMATIC FUEL



METAPHRAM
Type C2
for low pressure or vacuum systems—oil or coal fired.

METAPHRAM

METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

AUTOMATIC HEAT SECTION

leaking into this wall it must cool the wall, must it not? Your thermostat is located on this cool wall. Naturally the wall will cool the thermostat. Now if you'll blow some smoke on the wall alongside of the thermostat I'll show you something else."

He blew the smoke at the wall and, much to his surprise, it nearly all flowed downward.

"How's that?" he asked.

"Well, your cool wall is cooling some of the air in the room. The cooled air, being heavier than the warm

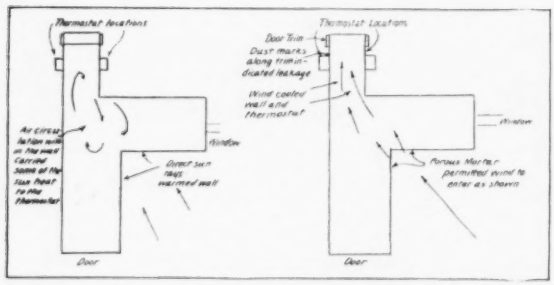


Fig. 2—This detail sketch shows a plan of the wall and the first and second thermostat locations. The influence of weather conditions is indicated

air in the room, drops. Now you'll notice that this cool air flows around the thermostat, so the thermometer really shows the temperature of this downward current of air and not the room temperature!"

"I see. Then the thermometer keeps the boiler going until this cool air is 70 deg. Fahr. and in the meantime the rest of the room goes to 80 deg. But why didn't the thermostat work properly in the dining room?"

"Because the other side of this little partition is just as cold as this side."

"I never thought of that." Now why was the house too cool this afternoon?"

"For just the opposite reason. This afternoon the sun was very bright, in fact, unusually so. In the afternoon the sun hits directly on the inside corner of your house, doesn't it?"

"Right on it."

"I'm sure that the wall became quite warm and that a good part of this heat was carried into the partition on which the thermostat is mounted."

"How did it get there?"

"In two ways. There is undoubtedly some air circulating within this partition which would carry heat by convection. The tile in the partition will carry some heat, too, by conduction."

"I'm away ahead of you now. The sun caused the partition to become warmer than the room which in turn caused a warm upward current of air around the thermostat. This current of warm air kept the burner from starting until the air dropped to 69 deg. Fahr. or thereabouts and in the meantime the rest of the house was too cool. Am I right?"

"Exactly."

"Where would you suggest that we locate the thermostat?"

"While we've been talking I've been looking around and I think the best place is over there near the bedroom door. That will put it on an inside wall at a long distance from an outside wall."

"I certainly do appreciate your help and I really don't know how to thank you. Now that our heating trouble is all settled, shall we play a little bridge?" Merlin said.

I met him on the street just yesterday, and he said that everything was fine, the new thermostat location was 100 per cent.

To Select Convention City for 1933

The board of directors of the American Oil Burner Association, Inc., will hold its next quarterly meeting at the Kahkwa Club, Erie, Pa., July 12, at which time a centrally located city will be selected for the 10th Annual Oil Burner Show and Convention, to be held in the late winter or early spring of 1933. A special conference of manufacturer members will be held at the same club on July 11.

Members of the Oil Burner Association of Philadelphia Visit John Wood Mfg. Co's. Plant

Members of the Oil Burner Association of Philadelphia and members of several refining companies in the same city were recently entertained by the John Wood Manufacturing Co. on a visit to its factory at Conshohocken, Pa., where they saw the manufacturing processes in the construction of range boilers, gas water heaters, electric water heaters, basement oil storage tanks and underground oil storage tanks. The visitors were also given a demonstration of loading the company's products on cars and trucks.

Following the trip through the plant, lunch was enjoyed at the Plymouth Country Club, which is located

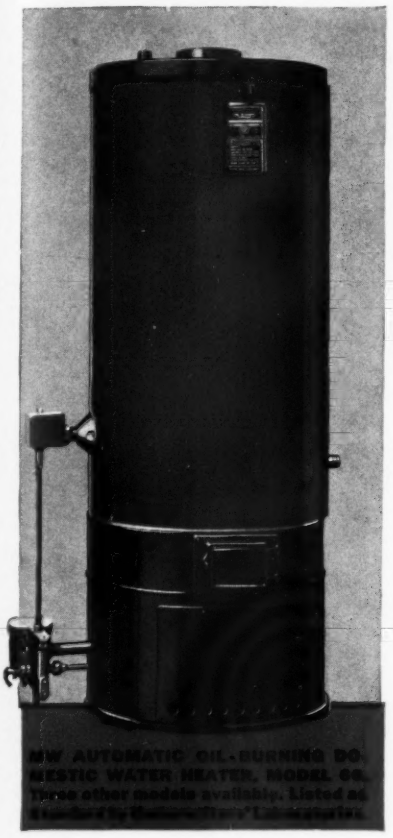
Members of the Oil Burner Association of Philadelphia who visited the plant of John Wood Mfg. Co.

near the John Wood Mfg. Co.'s plant. After lunch the June meeting of the Oil Burner Association was held.

Among the visitors were the following: C. W. Whitney, Rad Simon, D. T. Shaver, D. D. Delaney, L. T. Grimes, Geo. P. Williams, L. M. Owen, A. V. Ryan, E. M. Krusen, Wm. Lawrence, Don White, W. R. Taylor, J. N. D. Harris, J. J. Dunphy, C. T. Woodward, E. C. Wunder, F. E. Harms, B. R. Morrison, J. C. Dorsey and J. B. Williams, all of Philadelphia.

The visitors were conducted through the plant by L. T. Smith and A. N. Crawford of the sales force and E. D. Hurley and L. W. Robinson, factory officials of the John Wood Mfg. Co.

OIL HEAT SALES *in* SUMMER? CERTAINLY!



Live, saleable merchandise of seasonal appeal insures year-round profits to MW dealers

The business of MW dealers is not limited by season or climate. For instance—with hot water a daily problem in every household, this time of the year, they do a *Profitable Summer Business* selling MW Automatic Oil-Burning Water Heaters for homes, apartment buildings, stores, shops, garages, laundries, etc.

These dealers maintain a satisfactory record of warm-weather sales by demonstrating the superior convenience, dependability and safety of MW Automatic Water Heaters along with the fact that they cut fuel costs from 35% to 80%.

MW dealers do their year-round business because the MW line of oil-burning utilities includes Spring, Summer, Fall and Winter merchandise, each with its own seasonal appeal.

Choice dealer locations are available to wide-awake merchants. The MW franchise is a money-making proposition. Write for it today.

NEW!

MW Automatic heat-rotating Boiler Units for steam and hot-water heating, incorporating the truly amazing Cyro-Flame Burner—the unit that created such furore at the Boston Show.

AUTOMATIC MW OIL-BURNING WATER HEATERS

MW AUTOMATIC WATER HEATERS
Domestic and commercial sizes. For houses, apartments, office buildings, schools, shops, factories. Single and battery installations. Hot water at lowest cost.

MW AUTOMATIC BOILER UNITS
Heating with steam or hot water. Incorporate the amazing oil-burner development—the new, super-efficient MW Gyro-Flame Burner. Small and large capacities.

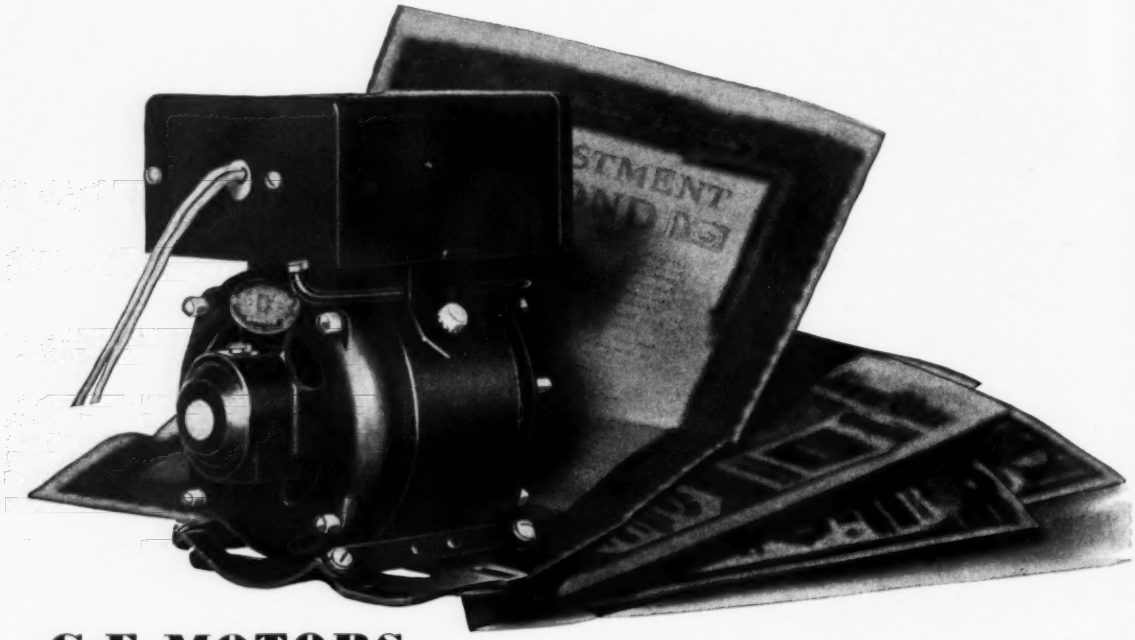
PRODUCTS THAT SELL SPRING, SUMMER, FALL, WINTER

MW "AUTOMATIC WEATHER CONTROL UNIT"
Round type, for greatest space economy. Also available in popular square type, of identical operating efficiency. Warms in Winter, cools in Summer—automatically.

MW OIL-BURNING COOKING RANGES
Two types—for homes, restaurants, lunch-rooms, roadside stands, hotels, clubs, etc. Quick, clean, uniform, controlled heat—the better, more economical way of cooking, frying, roasting, baking.

Manufactured by* MOTOR WHEEL CORPORATION, *Heater Division, Lansing, Michigan

An INVESTMENT *in* VALUE...



G-E MOTORS

for modern oil burners

A G-E fractional-horsepower motor is a sound investment in oil-burner-equipment value not only for every manufacturer but also for his dealers and their customers.

To the manufacturer of home oil burners, General Electric offers a complete line of fractional-horsepower motors available in capacitor and resistance split-phase types perfectly adapted to the performance characteristics of any oil burner.

Safeguard the "Margin of Comfort" with a G-E motor . . . that extra value in any oil burner which makes for satisfaction . . . permanently

Back of these motors are all of the facilities of General Electric. They are the products of nearly thirty years of successful fractional-horsepower motor design, manufacture, and application . . . proved, dependable. G-E motor specialists in your nearest office will coöperate with you in the solution of your drive problems.

Investigate also General Electric transformers, cable, heat control, and other oil-burner accessories.

210-182

GENERAL ELECTRIC

SUPPLY NEWS

FOR MANUFACTURERS, WHOLESALERS, SALESMEN

Plumbing and Heating Wholesalers of New England Hold First Convention

THE first convention of the Plumbing and Heating Wholesalers of New England, Inc., was held at the Ocean House, Watch Hill, Rhode Island, on Monday, June 27. This association was formed in Boston, Mass., on May 3 this year and was recently incorporated. There were 119 registrations at this first convention, and a large number of those present took advantage of the opportunity to spend a pleasant week-end at this attractive resort with its seashore and golf course.

Up to the present time very little publicity has been given to this movement, owing to the fact that its sponsors were anxious to lay a proper foundation, particularly concerning membership and the basis on which this new association would function, before issuing any statement for wide publication.

It is surprising to learn that in less than two months sixty-eight wholesalers of plumbing and heating material in New England have been approved for membership in this new association. An examination of the list and type of members under the three different classifications, under which membership is permitted, shows clearly how wide and wholeheartedly the trade has given this movement its support.

NOT IN COMPETITION WITH EXISTING ASSOCIATIONS

In a discussion with one of the officers of the new association, the question was raised as to the need of this organization, in view of the existence of the Eastern Supply Association and the National Pipe and Supplies Association. This officer said that it was the sincere hope of the officers and directors that no one would get the idea that this association had been formed for the purpose of setting up any competition for any association already in existence, and that every effort will be made to see that there is the least possible conflict. He pointed out that the Plumbing and Heating Wholesalers of New England, Inc., was composed entirely of established wholesalers of plumbing and heating material, and that they will confine their activities to the interests of those members, being fully conscious of the responsibility which the association owes not only to the manufacturer, but also to the contractor. In short, it is expected that membership in this association will soon be clear evidence of the sales policy of its various members.

This convention began at 10:30, Monday morning, June 27, and was called to order by President M. W. Dennison of Boston, who delivered the formal address of welcome. He pointed to the progress which has been made in the interest of the association since the date of its formation, and convinced the members present that they were to be congratulated on the success of the movement up to the present time, sixty-eight members having been approved by the board of directors.

THE NEED FOR THIS ORGANIZATION AND ITS AIMS

Harry G. Starr, former president of the National Plumbing and Heating Institute, delivered a very informative address on "The Need for This Organization and What It Can Accomplish." This address was followed by an interesting discussion, in which many members participated.

The feature of the afternoon session was an address by Herbert W. Thorndike on "Co-operative Effort to Offset High Tax Costs." Detailed reports from the chairmen of the Trade Relations Committee were also given at this session. It is worthy of notice that the work of this committee has been divided as follows:

Heating Supplies. William Hayes, chairman.

Plumbing Supplies. R. D. A. Thompson, chairman.

Pipe, Fittings and Valves. John E. Washburn, chairman.

These reports resulted in thoughtful discussions of the various problems considered, and clearly indicated that the members are fully convinced that the association activities will be very helpful to them.

A number of important resolutions were referred to the Resolutions Committee for preparation and submission at a later date to the board of directors for approval. It is understood that these resolutions, when published,

will indicate the basis on which this association proposes to function.

It is our impression that the members who attended the convention are enthusiastic concerning the future of the Plumbing and Heating Wholesalers of New England, Inc., and plan to give it every possible support.

Membership in the new association can be obtained under the terms specified in Article II, Section I and II of its by-laws, as follows:

(As Amended June 27, 1932)

"Section I. Membership in this corporation shall be divided into three classes:

"Wholesale Dealers in Plumbing Supplies.

"Wholesale Dealers in Heating Supplies.

"Wholesale Dealers in Pipe, Fittings and Valves.

"Any person, firm, association or corporation recognized by manufacturers as being engaged in business as wholesalers of the above classes and who is considered financially responsible, together with any duly accredited representative of any person, firm, association or corporation so recognized shall be eligible for membership.

"Applications for membership shall designate the class or classes in which the applicant desires membership, and election shall be considered on such basis only.

QUALIFICATION FOR MEMBERSHIP

"Section II. To qualify for membership in any of the three classes designated, applications must meet the following requirements:

"That he or they maintain a well diversified stock of material to properly meet the demands of retailers whose business they solicit, and who operate under a sales policy which in no way is detrimental to the interests of the retailer, in the distribution of merchandise in the three classes.

"Applications to have consideration by the board of directors must have the endorsement of a director of the corporation, who is located in the vicinity of the applicant's place of business, and the approval of two additional members of the corporation.

"Election of applicants shall be made by the board of directors, but, if there are three dissenting votes, the application shall be rejected."

It is planned to hold the next convention at some other point in New England in the early part of October, at which time the officers anticipate to hear reports from the various committees showing that a great deal of work has been done for the benefit of the members.

The officers and the committees of the association are as follows:

President, M. W. Dennison, Braman, Dow & Co., Boston.

Vice President, Thomas H. Dawson, Jr., Crane Co., Boston.

Treasurer, H. W. Thorndike, F. W. Webb Mfg. Co., Boston.

Secretary, E. F. Butler, Boston.

Board of Directors: Charles H. Barker, Nashua, N. H.; Arthur W. Blake, Portland, Me.; Timothy J. Collins, Holyoke, Mass.; George F. Elliott, Boston; Harrie C. Fletcher, Hartford, Conn.; Richard H. Gamwell, Pittsfield, Mass.; William Hayes, Manchester, N. H.; Frank W. Hubbard, Boston; Ernest H. Littlefield, Bangor, Me.; E. C. Marsden, Hartford, Conn.; Arthur C. Marshall, Rutland, Vt.; J. Walter Mills, Providence, R. I.; Herbert D. Nickerson, Providence, R. I.; Harry G. Starr, Boston; R. D. A. Thompson, Allston, Mass.; Quincy W. Wales, Boston; John E. Washburn, Worcester, Mass.

Executive Committee: Harry G. Starr, chairman; Thomas H. Dawson, Jr., J. Walter Mills, Frank W. Hubbard, H. W. Thorndike and John E. Washburn.

Membership Committee: E. C. Marsden, chairman; Charles H. Barker, H. D. Nickerson, T. J. Collins and R. D. A. Thompson.

Trade Relations Committee on Plumbing Supplies: R. D. A. Thompson, chairman; T. J. Collins, H. G. Starr, H. D. Nickerson and H. W. Thorndike.

Trade Relations Committee on Heating Supplies: William Hayes, chairman; A. W. Blake, E. C. Marsden, E. A. Morris, Lowell, Mass., and H. R. Myers, Worcester, Mass.

Trade Relations Committee on Pipe, Fittings and Valves: John E. Washburn, chairman; Thomas H. Dawson, Jr., G. F. Elliott, R. H. Gamwell and J. Walter Mills.

The truck shown above is used by the Baker Mfg. Co. of Kansas City, Mo., wholesalers, to advertise plumbing and heating in the territory covered by the concern. It is sent to the various master plumbers' conventions in the territory, and is equipped with a broadcasting apparatus. William B. Talbott, president of the company, is at the left, and C. E. Gay, sales manager, is at the right in the picture

LIST OF MEMBERS

The following is the list of members with their own selected classifications:

WHOLESALE DEALERS IN PLUMBING SUPPLIES, HEATING SUPPLIES AND PIPE, FITTINGS AND VALVES

Bennett Company, Somerville, Mass.
W. L. Blake & Company, Portland, Maine.
Blake-Rounds Supply Co., Portland, Maine.
The Blodgett Supply Co., Inc., Burlington, Vermont.
Louis Bourneuf Corp., Lynn, Mass.
Braman, Dow & Company, Boston, Mass.
Brown-Wales Company, Boston, Mass.
Central Supply Company, Worcester, Mass.
Carman-Thompson Co., Lewiston, Maine.
Collins Plumbing Supply Co., Holyoke, Mass.

More than fifty branch managers and sales representatives of the Spencer Heater Co. gathered in Williamsport, Pa., for their annual sales meeting

Corcoran Supply Co., Brockton, Mass.
Crane Company, South Boston, Mass.
Dalton-Ingersoll Mfg. Company, Boston, Mass.
Daly Plumbing Supply Co., Roxbury, Mass.
R. B. Dunning & Company, Bangor, Maine.
R. Estabrook's Sons Co., South Boston, Mass.
Federal Steam & Gas Supply Co., Boston, Mass.
The Wm. H. Gallison Company, Boston, Mass.
Hall & Knight Hardware Co., Lewiston, Maine.
Hirschfield & Mayer Co., Allston, Mass.
Holyoke Supply Company, Holyoke, Mass.
W. B. Hubbard & Sons Co., Boston, Mass.
Ideal Supply Company, Somerville, Mass.
Johnson-Barker Company, Nashua, N. H.
Johnson-Washburn Company, Boston, Mass.
Lincoln Iron Works, Rutland, Vermont.
Locke, Stevens & Sanitas, Inc., Boston, Mass.
Manchester Supply Company, Manchester, N. H.
H. W. Marshall Company, Newtonville, Mass.
Merrimack Valley Supply Co., Lowell, Mass.
McAuliffe & Burke Co., Boston, Mass.
Monroe Company, Jamaica Plain, Mass.
New Britain Plumbing Supply Co., New Britain, Conn.
New England Plumbing Supply Co., Springfield, Mass.
Norwich Plumbing Suppply House, Inc., Norwich, Conn.
J. T. O'Connell, Newport, R. I.
Old Colony Plumbing Supply Co., South Boston, Mass.
Palmer Mullen Company, Malden, Mass.
Phillips Lead & Supply Co., Providence, R. I.
Pierce, Butler & Pierce Mfg. Corp., Worcester, Mass.
Pierce-Perry Co., Boston, Mass.
The Plimpton & Hills Corp., Hartford, Conn.
Plumbers' Supply Co., New Bedford, Mass.
Providence Plumbing Supply Co., Providence, R. I.
Robbins, Gamwell & Co., Pittsfield, Mass.
The Shepard Company, Inc., White River Jct., Vermont.
The Smith & Abbott Co., Portland, Maine.
R. C. Sullivan Company, Cambridge, Mass.
The Thornley Supply Co., Pawtucket, R. I.
Thompson-Durkee Co., Allston, Mass.
L. H. Tillinghast Supply Co., Providence, R. I.
Universal Supply Co., Worcester, Mass.
F. W. Webb Mfg. Company, Boston, Mass.
Webster & Putnam Plg. Supply House, Webster, Mass.
White & Crowley, Inc., Springfield, Mass.
Joseph H. Young Company, Malden, Mass.

WHOLESALE DEALERS ONLY IN HEATING SUPPLIES AND PIPE, FITTINGS AND VALVES

Atlantic Pipe & Supply Co., Boston, Mass.
Boston Pipe & Fittings Co., Boston, Mass.
Bride Grimes & Company, Lawrence, Mass.
The F. Grey Libbey Company, Hartford, Conn.
Grinnell Company, Inc., Providence, R. I.
The Holyoke Valve & Hydrant Co., Holyoke, Mass.
Jennison Company, Fitchburg, Mass.
Parks-Cramer Co., Fitchburg, Mass.
Rhode Island Supply & Eng. Co., Providence, R. I.
Walworth Company, Boston, Mass.
Washburn-Garfield & Co., Worcester, Mass.

WHOLESALE DEALER ONLY IN PIPE, FITTINGS AND VALVES

The Lumsden & Van Stone Co., South Boston, Mass.

Central Supply Association Holds Zone Meeting in Excelsior Springs

A successful district zone meeting of the Central Supply Association was held in Excelsior Springs, Mo., June 23 and 24. President W. J. Spillane and Secretary Robert Macfee as well as Ex-Secretary W. E. McCollum were present and addressed the meeting. The manufacturers were well represented, and wholesalers from St. Louis, Quincy, Cedar Rapids, Omaha, St. Joseph, Springfield, Salina and Kansas City attended.

American Radiator Co. Reopens Buffalo Plant

The American Radiator Co. reopened its plant at Buffalo, N. Y., on Tuesday, June 28, after a shutdown of about two months. About 250 employes were recalled.

Bethlehem Foundry & Machine Co. Enters Oil Burner Field

The Bethlehem Foundry & Machine Co. of Bethlehem, Pa., has acquired control of the Oil-Elec-tric Engineering Corporation of Minneapolis, Minn., and this concerns's oil burner will in the future be manufactured in Bethlehem, while the present Minneapolis plant will serve as a direct factory branch.

Regent Plumbers' Supply Co. Increases Its Capital Stock

The Regent Plumbers' Supply Company, 1353 Third avenue, of New York City, has increased its capital stock from $50,000 to $100,000.

Executive Office Moved to Brooklyn

The executive office of J. D. Johnson Co., Inc., has been moved from 103 Park avenue, New York City, to the company's branch at 271 Atlantic avenue, Brooklyn, N. Y. The transfer took place June 25.

Moves Branch to Glendale, Long Island

Pierce, Butler & Pierce Mfg. Corp. of Syracuse, N. Y., has just announced that its Forest Hills branch has been moved to Building No. 12, Atlas Terminal, Cooper Avenue and Clara Place, Glendale, Long Island, N. Y.

WISE contractors, those who make it a habit to deliver better jobs and more customer satisfaction than competitors, are more and more enlisting under the Navy banner when it comes to deciding when to use "gates" and when to use "globes".

U. S. Navy piping system details specification 66P1 states, "Gate valves shall be used where service requires valves to be either wide open or shut tight... shall be used on all water lines except where otherwise specified.... globe valves shall be used in all cases where steam requires to be throttled..."

Contractors "in the know" are using a larger percentage of gate valves and fewer "globes"; and the gate valves are Flexitites because they are to be depended upon to provide absolutely tight shutoff in all cases. The more scientific-minded among engineers, contractors, wholesalers, architects, salesmen, etc., have unqualifiedly endorsed the new Flexitite Disc principle as it is exclusively applied to all Ohio Brass gate valves; as it has been thoroughly proved in everyday service for the past eight years.

OHIO BRASS GATE VALVE with renowned Flexitite Disc

Ask your Ohio Brass valve Wholesalesman to demonstrate the Flexitite gate valve principle for you.

1547V

OHIO BRASS COMPANY
Mansfield, Ohio, U.S.A.
New York City · Philadelphia, Pa. · Chicago, Ill.
WM. P. HORN CO., Los Angeles, San Francisco, Seattle

The "PROFIT IN THE MAKE UP" *Line*

Edwards Mfg. Co. Enters Air Conditioning Field

The Edwards Manufacturing Company of Cincinnati, Ohio, has purchased the good will, patents, manufacturing rights and machinery of the air conditioning system, formerly manufactured by the General Iron Works Co. of Cincinnati, Ohio, according to announcement just issued by Charles Eisen, receiver for the latter concern.

The Fisher Air Circulator Co. Is Organized

The Fisher Air Circulator Co., has been organized at Baraboo, Wis., to manufacture circulating systems for heating plants, and other mechanical devices. The firm is capitalized at $25,000. E. S. Clingman, William A. Platt and Frank T. Koehler are the incorporators.

Will Continue Its Branch at Auburn, N. Y.

The Hunting Company of Rochester, N. Y., announces that it has closed its branch house in Syracuse, N. Y., and that it will continue to operate its branch in Auburn, N. Y.

Now Marketing Its Pipe Threading Machine

The American Die & Tool Co., Reading, Pa., is now marketing the pipe threading machine which it manufactures. Previously this company has manufactured such equipment for other firms but is now selling as well as making the threading equipment. J. H. Sternbergh is general manager of the company.

To Represent Abingdon Sanitary Manufacturing Co.

P. C. Abbott & Co. of Richmond, Va., have been appointed sales representatives for the Abingdon Sanitary Mfg. Co. of Abingdon, Ill., covering its line of pottery in their territory.

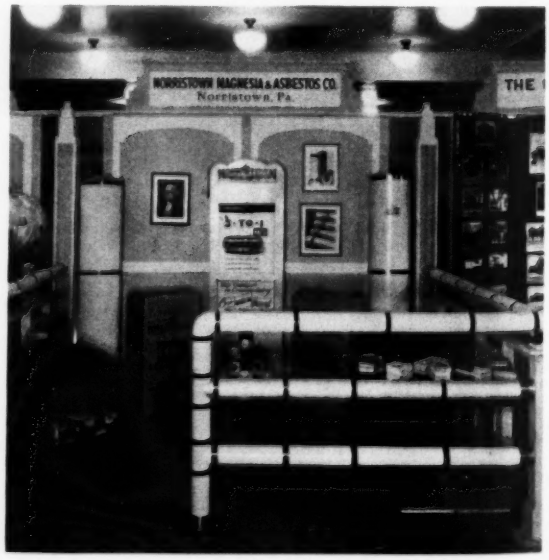


Exhibit of Norristown Magnesia & Asbestos Co. at New York convention of National Association of Master Plumbers

The Hoffman Specialty Co. Announces New Service and Sales Arrangements

The Hoffman Specialty Co. of Waterbury, Conn., has granted exclusive sales rights on its heating system equipment to the following concerns, according to announcement just issued by Guy Hutchinson, general sales manager.

Haynes Selling Co., Inc., 1918 Fairmount avenue, Philadelphia, Pa., covering western Pennsylvania, southern New Jersey, the state of Delaware and practically the entire state of Maryland.

Quimby-Ryan Engineering Sales Co., 1 East 42nd street, New York, N. Y., covering Manhattan and Staten Island, Bronx, and the following counties in New York state: Westchester, Putnam, Dutchess, Rockland, Orange, Sullivan and Ulster.

W. B. Philipber Co., Inc., 1 Hanson place, Brooklyn, N. Y., covering Brooklyn and Long Island.

Emerson, Swan, Goodyear, Inc., 110 Arlington street, Boston, Mass., covering all the New England states.

It is the purpose of these concerns to carry stocks of all the Hoffman Specialty Co.'s heating system equipment and to render wholesalers expert assistance. The company's wholesale customers will, however, continue to buy direct from the Hoffman Company their requirements of air valves and other products of the commodity type. This plan does not affect the Hoffman company's long-continued policy of marketing its products through selected wholesalers, who in turn sell to the heating trade.

Penn Electric Switch Co. Opens Export Office in New York City

The Penn Electric Switch Co. of Des Moines, Iowa, has opened offices at 15 Laight Street, New York City, to handle all its export trade with the exception of Canada.

Struthers-Wells Co. Appoints Representatives

G. H. Gleason & Co., 25 Huntington avenue, Boston, has been appointed sales representatives in New England by the Struthers-Wells Co., Warren, Pa., process equipment manufacturer. Byron L. Ashdown, Syndicate Trust Bldg., St. Louis, has been named representative in the Central, Southern, and Middle West.

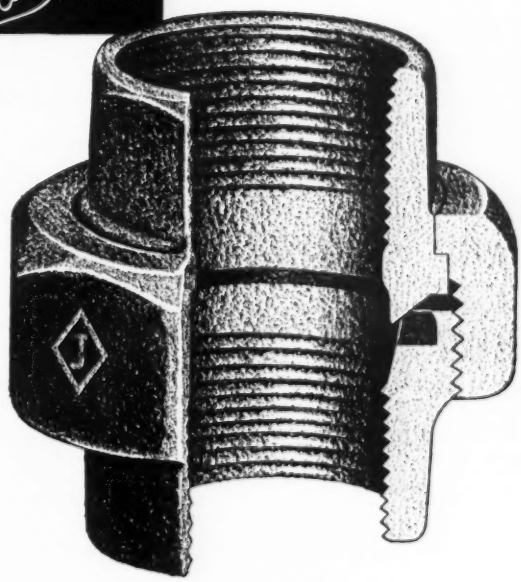
Appointed to Sell Kleen Kwik Chemical Co.'s Products

Kleen-Kwik Chemical Co., Inc., manufacturers of scale remover, of Flint, Mich., has appointed Shay-West & Associates, 616 South Michigan avenue, Chicago, to handle the sale of its products.

Refund Tax to Crane Co.

A refund of $73,608 is being made by the federal government to the Crane Co., part payment on an allowance of a claim for $167,676 for over assessment of the company's income tax for 1918. The remainder of the claim is being held because of a counter claim by the government for under payment of another year's taxes.

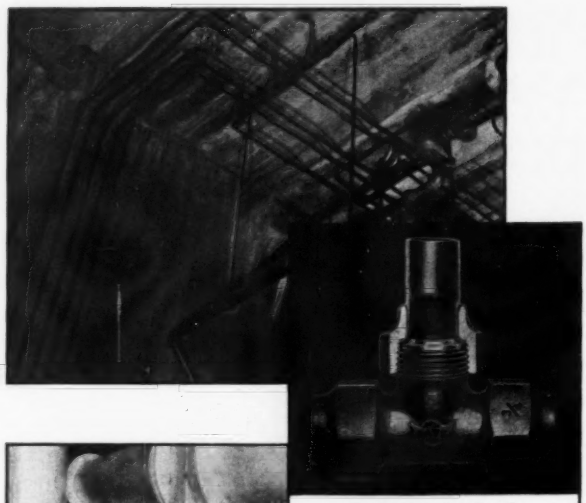
APPROVED by Underwriters Laboratories



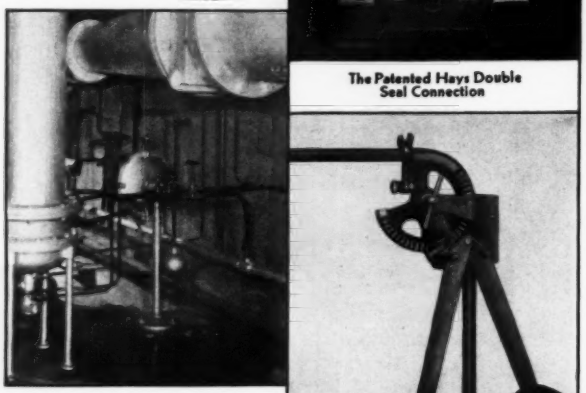
● The brass-to-iron seat and self-seating ball joint make Jarco Unions exceptionally leak-proof. No gaskets necessary. They pull up tight even should the pipe be out of alignment. Brass seats practically one piece with the iron . . . leak-proof. Highest grade air furnace malleable . . . all unions tested under pressure. Send for special circular.

JARECKI MANUFACTURING COMPANY
ERIE, PA.
U. S. A.

JARCO UNIONS



The Patented Hays Double Seal Connection



The Hays Bender

Over 600 Changes in Direction, Over 600 Fittings Saved

The Hays Bender is almost as important a factor in the Hays Copper Plumbing Method as the patented, leakproof Hays Double Seal Connection.

Look closely at the two piping photos above, which show part of the pump control lines to 8 water works pumps; notice that very few Hays Double Seals were required. Note also the uniformity of the many perfect bends.

The extraordinary feature of "spotting the bend" found only in the Hays Bender makes it possible to start a pipe bend at any fixed point and to continue it to any desired angle to 180 deg. Use these outstanding advantages of the Hays Bender to get the edge on the field in permanent plumbing.

Do you know, that for a very little more than the cost of short life plumbing, you can give your client permanent plumbing by the Hays Method and make more money for yourself? Send for our complete story on the Hays Copper Plumbing Method.

HAYS MFG. CO., ERIE, PA.

Patented HAYS Patented
DOUBLE SEAL CONNECTIONS

Obituary

Death of C. J. Hills

C. J. Hills, president of the Haydenville Company of Haydenville, Mass., died at his home in that city on Wednesday, June 22, in his 79th year. His death was caused by a severe congestion followed by pneumonia.

Mr. Hills had been president of the Haydenville Company for the last 33 years.

Herbert D. Nickerson Dies Suddenly

Herbert D. Nickerson

Herbert D. Nickerson, secretary and treasurer of the Phillips Lead & Supply Co. of Providence, R. I., died suddenly of heart failure on Monday evening, June 27, in his 64th year. Mr. Nickerson entered the employ of the Phillips Lead & Supply Co. at the age of 17 years and served the same company for 46 years. He began with Geo. R. Phillips, continued with Geo. C. Phillips and Geo. E. Phillips, the present president, serving three generations of the Phillips family. He was very active in association affairs in the plumbing and heating industry and was just before his death made a director in the recently organized Plumbing and Heating Wholesalers of New England, Inc., whose first convention at Watch Hill, R. I., he attended on his last day, and was spending the evening at Geo. E. Phillips' summer home in Misquamicut, R. I., when he died. His death will be felt as a serious loss by his many friends, both old and new, in the industry. He was also very active in social and fraternal organizations, being a past master of Whatcheer Lodge of A. F. & A. M. and of the Calvary Commandery, also a director of the Roger Williams Savings Association. The funeral was held Friday, July 1, from Calvary Baptist Church in Providence and was attended by many of his friends and business associates from every part of New England. He is survived by his widow.

Death of Esten Bolling

J. Esten Bolling, inventor, engineer and known throughout the industry as a heating, ventilating and air conditioning authority, was found dead June 17th in his home at Mountain Lake, N. J., with a bullet wound in his head. Mr. Bolling was an outstanding writer on technical subjects, having contributed many articles to engineering magazines and having edited a bulletin for the Carrier Engineering Corp. of Newark, N. J., known as "The Weather Vein." He had been associated with several engineering concerns in New York and New Jersey, and some years ago invented a humidifier which operates without the use of pumps or nozzles. Mr. Bolling was in his thirty-ninth year, a native of Wytheville,

Va., and was connected with the Bolling family of which Mrs. Woodrow Wilson, widow of the President, is a member. He took his mechanical engineer degrees at the University of Kentucky, and later under contract of the Quartermaster Engineering Corps subsistence division of the Army, he built and operated several dehydrated vegetable plants during the war.

National District Heating Association Holds Twenty-Third Annual Convention

The National District Heating Association held its twenty-third annual convention at the William Penn Hotel, Pittsburgh, Pa., June 14, 15, 16 and 17, and elected the following officers for the ensuing year: President, E. E. Dubry, Detroit, Mich.; first vice president, J. E. Hillemeyer, St. Louis, Mo.; second vice president, Wm. J. Baldwin, Jr., New York City; third vice president, R. L. Fitzgerald, Indianapolis, Ind.; secretary-treasurer, D. L. Gaskill, Greenville, Ohio. Executive committee: W. W. Stevenson, Pittsburgh, Pa.; M. D. Engle, Boston, Mass., and L. C. Killen, Dayton, Ohio.

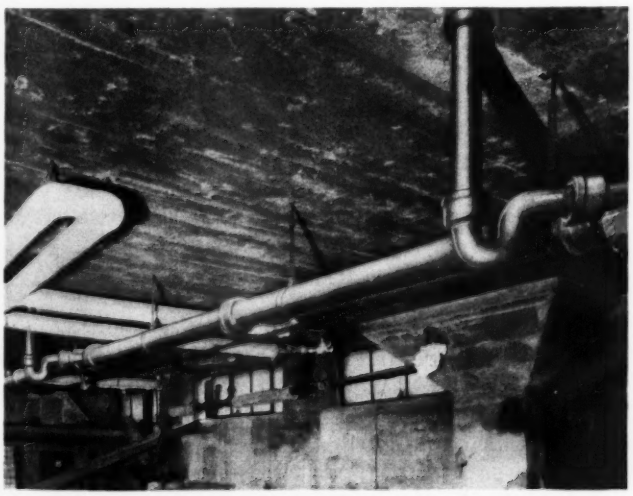
Among the outstanding features of the convention were many valuable and informative papers and addresses by leading authorities, the most notable being: "Professional Selling," by C. E. Redfield, American Radiator Co.; "Sales and Selling Methods," by George E. Whitwell, Philadelphia Electric Co.; "The Selection and Utilization of Fuels," by J. R. McCausland, Philadelphia Electric Co.; "Design and Selection of Pipe Covering Materials," by E. T. Cope, Detroit Edison Co.; "Air Conditioning," by V. S. Day, Carrier-Lyle Corp., Newark, N. J.; "Corrosion," by J. H. Walker, Detroit Edison Co., and "District Heating in Europe," by Arthur J. Slade, American District Steam Co., North Tonawanda, N. Y.

One evening of the convention was devoted exclusively to the presentation and discussion of manufacturers' equipment. New developments in apparatus, new methods of construction and improvements in existing apparatus were discussed by several manufacturers, of which some used moving pictures and lantern slides to illustrate their products. The following were among these concerns: American District Steam Co., North Tonawanda, N. Y.; Ric-wiL Company, Cleveland, Ohio; Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.; Warren Webster & Co., Camden, N. J., and C. A. Dunham Co., Chicago.

Chicago was selected as convention city for the 1933 meeting.

Reports Large Increase in Sales of Oil Burners

Sales figures just released by the Cleveland Steel Products Corp. of Cleveland, Ohio, point definitely to a large increase in business in its oil burner division. For the first five months this year the sales in this division have shown a tremendous increase over the same period of 1931, an increase amounting to 140 per cent, according to J. L. O'Brien, general manager of this division.



Chicago Faucet Co. uses *Duriron* Pipe *for Acid Wastes from Plating Departments*

One of the largest and better known manufacturers in its line is the Chicago Faucet Company of Chicago. To handle the acid wastes from their chromium and nickel plating departments, they installed Duriron Acid-proof Drain-pipe—because they knew that Duriron would give them permanent protection against costly leaks.

DURIRON ACID PROOF DRAIN-PIPE

Note the simplicity of the installation as shown by the illustration above. Note also the conventional method of hanging the pipe from the ceiling. Duriron Pipe is installed exactly like extra heavy cast iron soil pipe. Joints are caulked tight—not cemented—to prevent leaks.

Firms like this are splendid prospects. Look them up. Sell them. Also laboratories, photo-engraving plants, battery service stations and scores of other places that have acid waste disposal problems. Duriron profits are bigger. Make them yours. Write us.

THE DURIRON COMPANY, INC.
410 N. Findlay St., Dayton, Ohio

Patent Applied For

Here's the NEW

Klixon Relief Valve

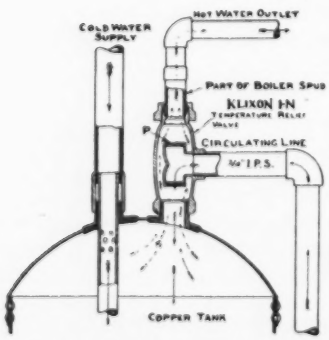
. . . FOR TEMPERATURE RELIEF ONLY
. . . HAS COPPER SEALED THERMO-ELEMENT
. . . FOR COPPER OR GALVANIZED BOILERS

List Price $10.00

This new valve was designed and tested in collaboration with the building inspection department of a New England city prominent in plumbing code development. To combat the varying water conditions throughout the country the thermal element is hermetically sealed in a copper envelope, effectively protecting it from corrosion. Send for complete data.

Specifications

1-inch IPS female thread on one end, 1-inch IPS male thread on other end,—reversible for copper or galvanized tank. ¾-inch IPS female circulating line connection. ⅜-inch IPS female drain. No fittings required. Dimensions—height 4⅝ inches, swing 2⅝ inches. Shipping weight 3 lbs.



This valve can be installed only in the one correct location for a temperature relief valve—at the top of the boiler at the hot water outlet. Requires no drilling.

Spencer Thermostat Company
Attleboro, Mass.

KLIXON

BUSINESS PERSONALS

Wilbert H. Campbell

WILBERT H. CAMPBELL has been appointed vice president in charge of sales for J. H. McCormick & Co., of Williamsport, Pa., manufacturers of air conditioning apparatus. Mr. Campbell will make his headquarters in the general sales offices of the company located in the Chrysler building, New York City. Mr. Campbell, who was formerly vice president of the Filtrine Mfg. Co. of Brooklyn, N. Y., and before that district manager for Servel, Inc., has had wide sales experience. It is his object in this new connection to popularize air conditioning for stores, restaurants and residences.

THOMAS E. CRONE, district manager of sales promotion for the Rome Brass Radiator Corporation of New York City, has been appointed sales manager of the Concealed Radiation Corporation of New York City. Mr. Crone has also served as district sales manager for W. A. Russell & Co. of New York City. He is thus well qualified for his new position. He has been a member of the American Society of Heating and Ventilating Engineers since 1920.

WM. P. BAUSMITH, manufacturers' agent at Cincinnati, Ohio, has just been appointed sales representative for the Milwaukee Stamping Co. of Milwaukee, Wis.

J. J. CONELLY of Los Angeles, Calif., has just been appointed representative for Enterprise Brass Co. of Muskegon, Mich., to cover southern California territory.

T. H. CREEARS is now representing the Chicago Pump Co., with offices located at Bendix building, Los Angeles, Calif.

A. E. EDWARDS of Seattle, Wash., has been appointed Pacific Coast representative of the Niagara Blower Co. of Buffalo, N. Y. He will establish offices in Seattle and San Francisco.

CHARLES J. BUSHONG of Harrisburg, Pa., has just been appointed sales representative for Rome Radiation Co. of Rome, N. Y., covering the following counties in Pennsylvania: Adams, Dauphin, Perry, Cumberland, Franklin, Juniata, Snyder, Mifflin, Union, Center, Lancaster, Lebanon and York. He will make his headquarters at 304 Forster street, Harrisburg, Pa.

ALEX HICKS, manufacturers' agent in Philadelphia, has just been appointed representative in that city and vicinitcy for J. P. Eustis Mfg. Co., of Boston. His headquarters are at 401 North Broad Street, Philadelphia.

WALTER H. HOAGLUND, who recently resigned as gas sales supervisor for the Kentucky-Tennessee Light & Power Co., has been placed in charge of the recently formed sales engineering department of the Sonner

Burner Co. of Winfield, Kansas. Mr. Hoaglund was also at one time connected with the Barber Gas Burner Co.

Eastern Trade Golfers Hold June Tournament

The regular monthly tournament of the Eastern Trade Golf Association was held on June 17th at the Lakeville Golf and Country Club, Great Neck, L. I., one of the finest courses in the country. About thirty members were present and the following prizes were awarded:

	G.	H.	N.	
George Allen, Jr.	98	28	70	Traveling bag
Edward Bauman	102	32	70	Coffee set
D. A. McKay	85	11	74	Umbrella
M. G. Hook	89	15	74	Golf bag
Harry P. Bartlett	98	24	74	Tray
H. W. Reis	99	25	74	Cocktail set
Samuel C. Carrie	84	9	75	Box golf balls
Harold Townsend	90	15	75	Box golf balls
A. P. Keasby	91	16	75	Toilet set
John C. Kjerner	81	5	76	Electric clock

Other Scores

	G.	H.	N.		G.	H.	N.
F. A. Murray	88	12	76	E. F. Glore	116	36	80
M. F. Morris	95	18	77	Wm. H. Staples	107	26	81
J. B. Garfield	86	8	78	L. B. Harrison	109	28	81
J. C. McDonald	98	20	78	S. Geoghegan	89	7	82
A. R. Glore	94	16	78	T. J. Yockel	116	34	82
J. T. Midyette, Jr.	105	26	79	H. T. Richardson	101	16	85
R. H. Smith	90	10	80	P. H. Holton	125	40	85
T. W. Powers	101	21	80	W. C. Mumford	114	26	88
G. E. Olsen	105	25	80				

Connecticut Trade Golfers' June Meet

The Connecticut Plumbing and Heating Trade Golf Association met on June 29 at the Middletown Country Club, Cromwell, Conn. As the result of the day's play, the following won the prizes:

Handicap 0 to 20

	G.	H.	N.
Low gross—F. J. Daly	83	..	..
2nd low gross—H. D. Williams	91	..	..
Low net—L. E. Gretter	94	18	76
2nd low net—J. R. Burns	93	15	78

Handicap 21 to 30

	G.	H.	N.
Low gross—Thomas Firth	93	..	..
2nd low gross—F. J. Klett	96	..	..
Low net—H. Ortigies	97	25	72
2nd low net—P. B. Cowell	102	26	76

Handicap 31 to 40

	G.	H.	N.
Low gross—J. D. Burnham	104	..	..
2nd low gross—C. A. Hjerpe	110	..	..
Low net—H. E. Coe	111	40	71
2nd low net—B. W. Erk	118	40	78
Guest prize—C. T. LePard	102	..	..
Consolation—P. C. Smith	129	..	..

The Connecticut association will hold its July meeting at Mill River Country Club, Stratford, Conn., on July 21.

San Francisco Trade Group Plays Golf and Elects Officers

An afternoon of fast golf on one of California's finest courses, a well attended banquet meeting and the annual election of officers—such were the high lights of the June tournament of the Plumbing and Heating Club of San Francisco, which was held at the Lake Merced Golf and Country Club, just south of the city.

Immediately following the banquet, three new board

NEW BUSINESS AT YOUR FINGER-TIPS

from handles that turn with a touch!

RIGHT in your neighborhood there are thousands of old, leaky, worn-out faucets that should go to the scrap heap. Our Dynamic fittings offer you a great opportunity to get this business. Present-day lowest prices for Kohler quality—the best value in years—make it easy for people to say "yes" when you suggest needed replacements.

Show this beautiful, modern Kohler chromium-plated Dynamic fitting to your prospects. Notice the graceful handles designed for finger-tip control. Fast action from complete stop to full-flow with the least effort and minimum pressure and wear on the valve seat.

If something does go wrong with a valve seat after long use, it's easy to drop in a "Remov" unit, which provides a new seat. Costs only a few cents.

At present-day prices people will want the combination fitting with the advantages of mechanical waste control and washing in running water.

Prices are lower than they have been in years. Never has it been possible to offer Kohler quality at such prices. Your best argument is quality. Kohler quality, plus Kohler prices, means money in your pocket. The name "Kohler, U. S. A." is on every fixture and fitting. Kohler Co., *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities*. Makers of Kohler Electric Plants.

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS

Make Quick Sales with these Selling Points!!

SELF-OILING

ENCLOSED GEARS

EXTRA LARGE VALVES

IMPROVED METHOD OF POWER APPLICATION

HIGH SPEED HEAVY PRESSURE LARGE CAPACITY

SAFE ECONOMICAL DEPENDABLE

Myers—the original line of self-oiling power pumps for shallow and deep wells with a thoroughly established background of outstanding success over a long term of years offers indisputable evidence of greater opportunities for profitable power pump business.

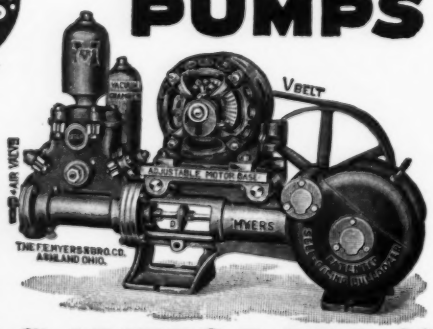
Mechanical excellence, perfect lubrication, increased volume, extreme motive economy, low prices—values not to be approached by many other types of self-oiling power pumps—are so outstanding from the service point of view that they afford the pinnacle of selling power for dealers.

MYERS

SELF-OILING A REGISTERED TRADE NAME

BULLDOZER POWER PUMPS

NEW LOW PRICES!



THE F. E. MYERS & BRO. CO

ASHLAND, OHIO.

ASHLAND PUMP AND HAY TOOL WORKS

members were chosen to succeed those whose three-year term of office had just expired. Al. G. Atwood of the retailer branch was elected to succeed Jack Camp. F. F. Eliott, assistant manager of Crane Co.'s San Francisco branch, succeeds himself as a representative of the jobbers, and Frank B. Mosher of the Bryant Heater & Mfg. Co., replaces Morris Greenberg in the manufacturers' classification. Upon adjournment of the open meeting, the directing board went into executive session and chose the following named men to serve as officers for the 1933 fiscal year: F. F. Elliott, president; Wm. A. Rowe of Anderson & Rowe, vice president; and Ralph J. Olsen of Olsen & Heffernan, treasurer. The retiring president is Emile Heymans.

Sharp competition developed in the golf tournament, with all but seven member-players cracking the 100-mark. Donald O'Hair earned Class A honors with a low net of 72. In the B division, Wm. Lane and Jack Camp, each with a 72 low net, were obliged to cut to decide the honors which were finally awarded to Mr. Lane. The three-way tie for the blind bogey trophy was eventually decided in favor of E. Clausen, over Robt. E. Lees and Wm. A. Rowe. By reason of his high gross of 114, possession of the iron cup passed to Stuart Greenberg.

The scores:

	Gr.	Hd.	Net		Gr.	Hd.	Net
Mosher	97	22	75	Stewart..	100	G	100
Blair	100	17	83	Gabbert	97	18	79
Elliott	86	9	77	Taylor	98	15	83
Carrigan	92	12	80	Clark	96	15	81
Hensley	108	G	108	Greer	95	G	95
O'Hair	87	15	72	Lane	107	35	72
Clausen	92	G	92	Rainwater	103	19	84
Allmon	100	17	83	Forsythe	101	20	81
Lees	92	12	80	Turner	94	14	80
Camp	95	23	72	Atwood	96	20	76
Greenberg, M.	104	22	82	Greenberg, S.	114	31	83
Rowe	89	16	73				

New York Plumbing and Heating Golfers Hold June Meet

The Plumbing and Heating Golf Association of New York, through the courtesy of Eugene Duklauer, held its June meet at the Fenimore Country Club, White Plains, New York, June 15th. The Fenimore Club, being one of the finest in the New York district, afforded some keen trials to the skill of the twenty-eight participants. The following scores were carded:

Class A

	G.	H.	N.		G.	H.	N.
Becker, H. H.	118	21	97	Murphy, J. F.	96	15	81
Denicke, C. H.	93	12	81	Power, L.	89	11	78
Duklauer, E.	94	15	79	Roberts, K. S.	92	9	83
Fassler, B.	98	12	86	Smolka, M.	99	22	77
Garrity, H.	88	12	76	Warth, D.	94	18	76
Kelly, L.	90	17	73	Well, J. E.	93	13	80
Kjerner, J. C.	81	6	75				

The prize winners were: 1. Kelly, L.—2. Kjerner, J. C.—3. Garrity, H.—4. Warth, D.—5. Smolka, M.—6. Power, L.—7. Duklauer, E.

Class B

	G.	H.	N.		G.	H.	N.
Barnum, J.	116	30	86	Henzel, C.	126	30	96
Brutschy, F.	116	35	81	Katz, J.	118	25	93
Coleman, C. S.	115	26	89	Leibfried, C. H.	85	23	62
Doncourt, W. M.	100	25	75	Leiblich, H.	115	28	87
Edwards, E.	106	26	80	Mittleman, W.	123	35	88
Foster, A. S.	115	33	82	Schwartz, E.	100	32	68
Hale, A. W.	100	29	71	Woods, J. P.	99	25	74
Halloran, H.	107	26	81				

The prize winners were: 1. Leibfried, C. H.—2. Schwartz, E.—3. Hale, A. W.—4. Woods, J. P.—5 Doncourt, W.—6. Edwards, E.—7. Halloran, H.

TRADE

NEWS OF PLUMBING AND HEATING CONTRACTORS

Northern Zone Illinois Master Plumbers Meet in Rock Island

Members of the Northern Zone-Illinois Master Plumbers Association held a meeting at Fort Armstrong Hotel, Rock Island, Ill., on June 15, at 2 o'clock in the afternoon.

President C. E. Ling of Freeport called the meeting to order and introduced M. L. McKay, past president of the Illinois Master Plumbers Association.

The visitors to the city were welcomed by Chester Thompson, mayor of Rock Island, and by R. A. Jacobson, secretary of the Rock Island Chamber of Commerce. Master plumbers from the following cities were in attendance: Monmouth, Rockford, Rock Island, Moline, Kewanee, Peoria, Chicago, Chicago Heights, Freeport and Dixon, Illinois, and Davenport, Iowa. Various wholesale houses were also represented at the meeting.

Addresses were given by Henry P. Reger of Chicago and C. A. Bolton of Chicago Heights, president and general secretary, respectively, of the Illinois Master Plumbers Association.

W. J. Spillane of Jas. B. Clow & Sons, Chicago, president of Central Supply Association, was the principal speaker. In the course of his address he said: "The building industry saved the country from a marked depression in 1922, because it held to a high level of activity, when manufacturing and other lines of endeavor were in a decline. As the largest operation in the country, the building industry will be in the van when the economic regain sets in. As a matter of fact it is not unreasonable to assume that the depression will not recede until building starts. Construction is so closely affiliated with the business and industrial pulse of America that a definite move for recovery is bound to be almost immediately reflected in building."

Mr. Spillane's ideas about merchandising and cooperation between wholesaler and master plumber, as he explained them, attracted the undivided attention.

The officers of the Northern Zone-Illinois Master Plumbers Association are: President, C. E. Ling, Freeport, Ill.; vice president, A. A. Dieterle, Sterling, Ill., and secretary-treasurer, Kirk A. Journy, Rock Island.

Arlington County Masters Announce Change of Name

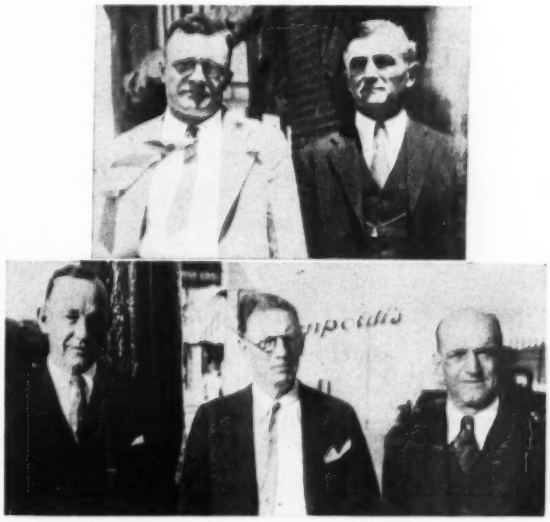
The Arlington County, Virginia, Master Plumbers' Association has announced that it has changed its name to "The Master Plumbers and Heating Contractors Association of Northern Virginia."

Northern California Federation Meeting Draws Generous Attendance at Martinez

A happy combination of business and pleasure drew close to a hundred and twenty-five members from all branches of the plumbing and heating industry, and their wives, to the June 11th meeting of the Northern California Federation of the Plumbing and Heating Industries, that took place at the Travelers Hotel, Martinez. This was the federation's fifth conference, and the first to be held under the direction of the new officers, President Harry G. Newman of Oakland wielding the gavel. The host association consisted of the membership of the Contra Costa County Master Plumbers' Association, of which H. E. Near of Walnut Creek is president.

The executive session, held in the afternoon and attended by upward of fifty master plumbers from northern and central California, was devoted to the Authorized Dealership Plan, featured by reports and discussions bearing on this plan which was approved at the state convention held recently in Oakland.

At the conclusion of the banquet President Newman



Top row, left to right: Thomas J. Kennedy of Martinez, secretary, and H. E. Near of Walnut Creek, president of Contra Costa County Master Plumbers' Association. —Bottom row, left to right: Harry G. Newman of Oakland, president; James F. Mauzy of Walnut Creek, vice president, and J. V. Young of San Francisco, secretary, all of Northern California Federation of the Plumbing and Heating Industries

MONEY IN REPAIR CALLS?

YES! IF YOU TALK UP T/N FOR REPLACEMENTS

STOPPED-UP drains and leaky faucets—no money for you in jobs like that. Adopt this simple plan to make them bring in worthwhile business. On every call, suggest T/N to replace the old toilet—show them a picture of T/N—mention T/N's outstanding features. And remember this—the number of times you tell the T/N story will determine how great your increased business will be.

Use these facts to interest home owners: T/N is unusually quiet flushing. One-piece design saves space. Non-overflowing. Twice-fired vitreous china. Many colors to choose from. Easy to install—no muss or fuss—just two connections to make. Fits in corners, under windows or stairs. And the cost is moderate. Write us for the name of your T/N jobber. ONE PIECE WATER CLOSET SILENT NON-OVERFLOW *Patented, Pat. Pend*

W. A. CASE & SON MFG. COMPANY, *Founded 1853*
Dept. 627, 31-33 Main St., Buffalo, N. Y.

T/N
ONE PIECE WATER CLOSET

made a short address, touching on the advantages offered by the federation and graciously acknowledging the loyalty and support of the Contra Costa County Association. Mr. Newman then introduced federation vice president Jas. F. Mauzy of Walnut Creek who spoke on "The Mail Order House and the Rural Plumber." Characterizing today's state of business as the result of "willful spending and waste," the speaker pointed to the frantic efforts of the various branches of the trade to secure their share of what business there is, many of these efforts taking the form of ruinous price-slashing and unsound methods. Mr. Mauzy then tackled the meat of his subject, showing that the brunt of the competition offered by the mail-order and direct-to-you houses is borne by the master plumber in the rural centers and unincorporated towns. Mr. Mauzy then cited instances wherein his sales efforts were nullified by the highly colored pages of the mail-order catalog.

About merchandising, it was shown that "the ever changing problems have brought about a condition that will require far greater sacrifices to right them, than any yet made." This was followed by two questions: "Is the manufacturer's policy of distribution economically sound? Will it not be necessary for him to establish qualified dealers and place his goods direct at a price that will enable dealers to compete, with a fair margin of profit? "The speaker went on by stating that if the present system of distribution and lose credits is maintained, what is today the retailer group will tomorrow degenerate into a "disorganized band of installers."

"Right now," concluded Mr. Mauzy, "I believe there is an excellent set-up for successful business. There are a great number of plumbing and heating dealers with splendid stores and showrooms, dealers who are organized and understand their business thoroughly. These men are quite ready and eager to co-operate."

ADVOCATES APPOINTMENT OF SANITARY INSPECTORS

Dr. I. O. Church, public health officer of Contra Costa county, had something to tell the masters on the subject of "Public Health." Those located in the larger towns and cities were surprised at the conditions obtaining in certain unincorporated towns, as outlined by Dr. Church, who added that "our chief source of trouble arises in connection with these towns."

The doctor's remarks on dysentery, typhoid and hookworm, and their eradication through proper sanitary measures, held the interest of his hearers from first to last. "In such cases," said he, "the appointment of competent sanitary inspectors in rural areas will go far toward the prevention and spread of such diseases." The organization plan of the modern county health department, with its three branches—administration, public health nursing and sanitary inspection, was gone into with the idea of showing the direct relation between the preservation of public health and the maintenance of satisfactory sanitary control.

Turning to the needs of his own county, Dr. Church stated they are at present without an adequate inspection service for dairies, water supply and food depots.

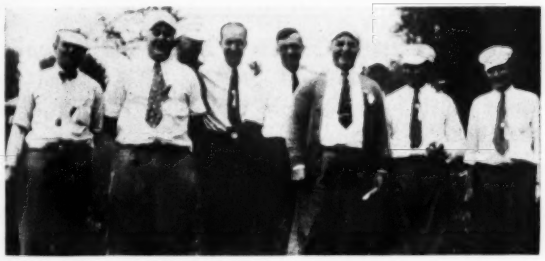
The program was concluded by an able address on

the subjects of public service and finance, delivered by Wm. H. Hanlon, superintendent of Contra Costa County Public Schools.

The date of the next federation conference and where it will be held, will be announced in due time by President Newman. Such meetings are customarily called every three months.

Philadelphia Master Plumbers' Annual Outing

The Philadelphia Master Plumbers' Association held its annual outing on Saturday, June 18th, at Forrest Park, Chalfont, Pa., with a good attendance. The weather man had predicted rain for the day, but fortunately he was mistaken as no rain fell. This was a basket picnic and the outstanding feature was a match between the Philadelphia Gas Works bowling team and a team composed of master plumbers, in which the Gas Works team won two out of three games, in spite of the fact that



Harold Asquith, John Naegle, Edward Quaid, Ellis Hendricks, Ed. Rinear, Chas. Rapp, chairman, William Beahm, Henry Cramer, and Jos. Soehle, Philadelphia Master Plumbers' Outing Committee

Calvin Doan made the high single score of 202. The members of the master plumbers' team were: Calvin Doan, Earl Doan, George F. Uber, Robt. H. Pflug-Felder, Wallace Raid, H. L. Stilwell, Jr., J. T. Palfreyman and Conrad Eisman.

A ball game was also played, in which every man was a star, and George F. Uber proved himself a perfect umpire.

The winners of the various races were as follows:

Boys' 50 yd. dash: M. Tankel and M. Birmingham.

Boys' 100 yd. dash: John F. Seibel and Harry Chapman.

Girls' 50 yd. dash: Marie Kuhn.

Fifty yd. dash for girls over 10 years: Ruth Dykes.

Ladies' sack race: Kitty Duke and Ethel Smith.

Men's 100 yd. dash: A. Hendricks and J. F. Seibel, Sr.

Men's sack race: Charles Young and A. Hendricks.

Egg race: J. F. Seibel and D. Falconia.

Balloon race for men: James Edgar and Ed. Quindlan.

Balloon race for ladies: Mrs. Ethel Young and Miss Ethel Smith.

Spoon race for ladies: Angela Quaid and Ethel Smith.

Nail driving contest: Mrs. D. D. Whealin and Mrs. E. Young.

The members of the outing committee were: Charles Rapp, chairman; Walter Raid, Harold Asquith, John

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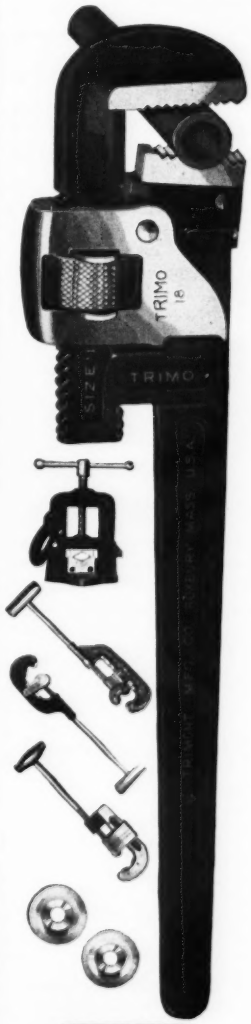
gives you the advantage

in these highly competitive days



YOU can do faster work, better work—and, in the long run, lower cost work with TRIMO pipe tools.

Keep your tool equipment up where it belongs—at full wartime strength, because in these days it's a real battle to get the business and the profits.

Your TRIMO dealer has put himself in immediate readiness to fill your orders on TRIMO pipe wrenches, vises, cutters and the famous TRICROME *faster* wheels. These are the finest tools that you or your competitors can obtain today. You need them to win.

TRIMO TOOLS

Made for 50 years by Trimont Mfg. Company
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The LEADER

The LEADER Tank Ball with its heretofore unheard of low price has found a very definite place in the contractor's present day selling plans. Its low price appeal has won instant favor with customers.

The LEADER Float has been designed to meet the demand for a float that will operate under ordinary or severe service conditions. Use them where ordinary floats will not stand up.

Write for details.

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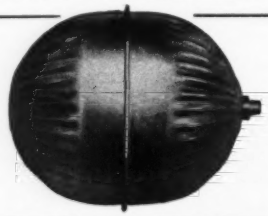

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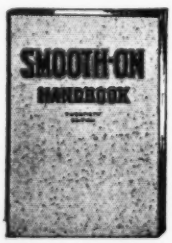
FLOATS and TANK BALLS

GOOD THREADS *are worthy of a good joint filler*

SMOOTH-ON No.3

THREADED or flanged joints made with Smooth-On No. 3 can be taken apart at will, but in service *must* stay tight. The metal filling once spread perfectly over the thread surfaces and set, cannot dry, shrivel or blow out under vibration, high pressure and wide temperature range, because it then acts in unison with the pipe metal itself—and has the same expansion coefficient.

If you want perfect joint performance, read the Smooth-On Handbook, and give Smooth-On No. 3 a trial.



Get Smooth-On No. 3 in 1 or 5-lb. can or 25-lb. keg from your supply house or if necessary, direct from us.

SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N. J.

Do it with SMOOTH-ON

Naegle, Calvin Doan, Henry Cramer, James Soehle, Ellis Hendricks, Ed. Rinear, William Beahm and Edward Quaid.

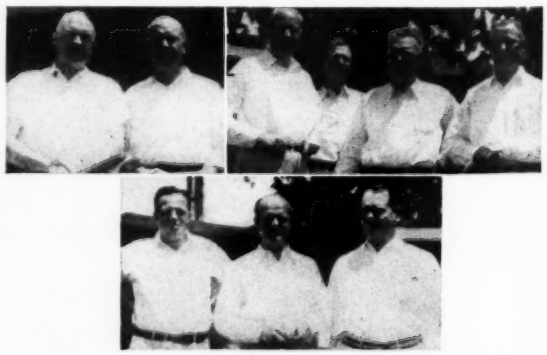
M. S. Hauser at Work as Executive Secretary in Los Angeles

Martin S. Hauser has been appointed to the position of executive secretary of the Merchant Plumbers' Association of Los Angeles, Calif., by the executive committee of that body, to succeed Ralph J. Dixon, resigned, and he has entered upon his new duties. Mr. Hauser brings to the secretaryship a long experience in the plumbing field. For 18 years he was with the N. O. Nelson Mfg. Company of St. Louis, Mo., before that, for 12 years with the former Sanitary Company of Cleveland, prior to which he was in the employ of the former George H. Tay Company of San Francisco. One of Mr. Hauser's first official acts was to make available at the association headquarters copies of plumbing ordinances in force in all of the cities in southern California.

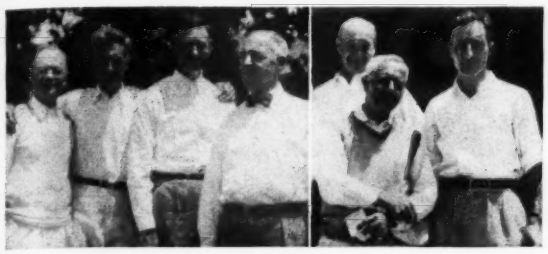
Western Trade Golfers at Maywood in June

The Western Trade Golf Association played Maywood Golf Club at Maywood, Ill., for its June tournament on the twenty-third, and a perfect day enticed sixty members and guests to attend. The second round of the championship matches and the first round of the consolation matches were held and the names starred below represent the players who advanced in their respective divisions.

President M. G. Henderson presided at the evening meal and awarded the prizes. Winner of the association cup, as well as first in classes A and B, was George E. Tebbetts, Chicago Rapid Transit Co. J. H. Needler of Phillips-Getschow Co. was runner-up in the same class. A. T. Johanson, Johanson Water Heater Co., brought in low score for class C, with C. E. Barrows, Crane



Top row, left to right: J. C. Matchett, Illinois Engineering Co.; E. J. Gossett, Bell & Gossett Co.; M. G. Henderson, A. M. Byers Co., president, Western Trade Golf Association; J. A. Sutherland, Holabird & Root; L. P. Dwyer, C. A. Dunham Co., and C. E. Barrows, Crane Co.—Bottom row, left to right: H. W. Mollison, National Tube Co.; Russell Doherty, National Radiator Corp., and Frank Gaylord, Hoffman Specialty Co.—At Western Trade Golf Association's June tournament at Maywood Golf Club



From left to right: M. C. Hartman, F. C. Staples, Johnson Oil Burner Co.; A. T. Johanson, Johanson Water Heater Co.; H. E. Risher, Risher Fire Brick Co.; George Dickerson, Mehring & Hanson Co., captain; Carl Johnson, of C. W. Johnson, Inc., treasurer; Roy Getschow, Phillips-Getschow Co., handicapper.—At Western Trade Golf Association's June tournament at Maywood Country Club

Co., runner-up. J. A. Sutherland, Holabird & Root, was first in class D and Robert A. Widdicombe, W. A. Pope Co., was second.

A special prize for the most sixes was won by C. H. Bevington, Trane Co. C. E. Price, Engineering Publications, Inc., picked the blind bogey.

Scores for the day follow:

Players	G.	H.	N.
E. W. Rietz	104	26	78
*George Turner	111	30	81
*C. W. Johnson	102	25	77
*F. Wescher	98	24	74
*H. W. Mollison	103	20	83
*R. Doherty	88	11	77
C. E. Price	103	18	85
R. C. Fries	112	30	82
*W. A. Taylor	96	17	79
*F. Gaylord	99	21	78
R. E. Cramsie (Guest)	81	..	..
W. E. Nash (G.)	81	..	..
J. London (G'st)	85	..	..
*D. M. Cooper, Jr.	109	26	83
*C. E. Barrows	99	24	75
*G. H. Dickerson	94	19	75
*J. A. Sutherland	98	30	68
*M. G. Henderson	94	17	77
*W. T. Walters	105	20	85
J. C. Matchett	99	18	81
*W. H. Lotts	88	12	76
*F. H. Paschen	88	12	76
L. Stacy (G'st)	81	..	..
Jess Stanfiel	100	17	83
*R. A. Widdicombe	105	30	75
W. R. Loveless (Guest)	113	..	..
M. Davies (G'st)	98	..	..
*M. E. Allen	99	25	74
L. O. Krez	98	20	78
*C. F. Paschen	96	18	78
R. M. Getschow	100	24	76

Players	G.	H.	N.
L. P. Dwyer	91	14	77
*Chas. Thumm	97	21	76
*E. J. Gossett	102	25	77
*E. P. Rich	103	18	85
*R. M. Stackhouse	100	20	80
R. E. Moore	92	17	75
E. C. Welch	90	14	76
E. C. O'Connor	99	14	85
*S. Miller	110	25	85
*C. L. Wilkins	89	13	76
*F. C. Staples	98	20	78
*A. T. Johanson	95	22	73
M. C. Hartman (Guest)	91	..	..
*H. E. Risher	105	22	83
*J. A. Corboy	97	22	75
T. A. Callaghan	103	18	85
*J. H. Needler	89	17	72
W. P. McFarland	110	28	82
H. A. Durr	115	30	85
P. A. Potter (G.)	111	..	..
H. W. Fea (G.)	120	..	..
D. M. Kenney (Guest)	112	..	..
*C. H. Bevington	110	30	80
*J. H. O'Brien	94	17	77
*W. H. Meyst	96	10	86
*G. E. Tebbetts	84	14	70
*W. V. Hoier	108	26	82
*C. Peterson	102	27	75
J. M. Stannard	104	24	80

*Match winners.

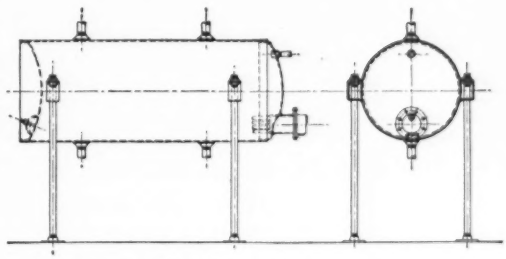
Philadelphia Brotherhood Holds Annual Election

The Brotherhood Association of Master Plumbers of Philadelphia, Pa., held its annual election on Tuesday evening, June 21, with the following result: President, Harry Seligman; vice president, Robert Polsky; treasurer, Albert Mills; secretary, Harry Horowitz; recording secretary, Samuel Pollin, and sergeant-at-arms, Benj. Wexler. This association is planning to hold a picnic at Pine Lake, N. J., July 24.

Announcing the

"KOVEN-PARACOIL"

QUALITY DOMESTIC TANK and HEATER COMBINATION



For Below Water Line Use on Steam and Hot Water Installations

ESPECIALLY ADAPTED FOR OIL BURNER JOBS

● **SAFE—**
No danger of flooding system

● **ECONOMICAL—**
Low cost of operation
Easy to install

● **EFFICIENT—**
Plentiful supply of Hot Water

● **LASTING—**
Made in Double Extra Heavy Weight only

● **SIZES—**
1 to 10 families

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Range Boilers
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Gentlemen:

Please send full details on "KOVEN-PARACOIL" Tanks, without obligation.

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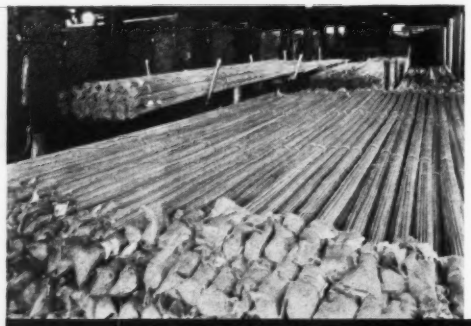
MY JOBBER IS .....



IF YOU WOULD CUT INSTALLATION COSTS- *use* FRETZ-MOON PIPE

Do you prefer steel pipe that cuts faster—that bends easier—that threads cleaner—that saves installation time and costs—and that leaves less waste on the job? If you would have all these economies plus quality steel pipe as fine as money can buy, it will pay you to investigate Fretz-Moon Pipe. Made in all the usual sizes.

FRETZ-MOON TUBE CO., INC. • Butler, Penna.

FRETZ-MOON PIPE
BLACK AND GALVANIZED

PIPE FITTINGS

Clean threadways—Tapping to gauge—Absence of sand holes—all go to distinguish—IMICO—Fittings.

A full line in malleable iron, cast iron and brass.

Also manufacturers of brass and iron valves.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
MANUFACTURERS OF BRASS AND IRON VALVES

Back row, left to right: Harold Zentner, Carl Marsh, Rob Morrill, L. C. Lenz, E. A. Babcock, Dan Osborn, and W. E. Magill.—Second row: Roy Palmer, Frank Livick, H. D. Hyzer, Fred Schmitt, Jesse Davis, Harry Hoover, Ernst Clemons, and Edward Trebs.—Front row: Grover Harkness, Anthony Metz, Stanley Dereszynski, A. C. Oleson, and M. Kleiner.—At the annual outing of Southern Wisconsin Sanitary Club

The Annual Outing of Southern Wisconsin Sanitary Club

Ways and means of improving business conditions were discussed during the course of the annual outing of the Southern Wisconsin Sanitary Club, held recently at Charley's Bluff, Lake Koshkonong, Wis., but on the whole members were inclined to forget their business troubles and join in the picnic activities provided for them by officers of the organization. Baseball, horseshoe contests and picnic games were offered as an effective panacea for business ills of the moment, and members joined wholeheartedly into the effort to forget business cares.

Peter King, executive secretary of the Milwaukee Master Plumbers' Association, gave a brief talk during the afternoon, stressing the importance of greater effort toward better salesmanship and merchandising. Other informal talks were given by Carl J. Marsh, counsel for the Milwaukee and Wisconsin associations of Master Plumbers, and Dan Osborn of Beloit, Wis.

Michigan Trade Golfers Hold June Meet

The regular monthly meeting of the Michigan Trade Golf Association was held at Tam O' Shanter Golf and Country Club, Detroit, Mich., on Thursday, June 23rd, with a good attendance, as shown in the scorekeeper's record, which follows herewith:

	G.	H.	N.		G.	H.	N.
E. J. Anderson*	78	8	70	R. L. Deppman	104	24	80
J. B. Whitford*	91	18	73	J. F. Miller	97	18	79
J. W. Pitchford*	93	18	75	Harry Roland	116	24	92
C. W. Gudnaw*	97	19	78	L. L. Smith* (G't)	104	..	..
Edw. Glanz*	109	24	85	H. R. Frater (G't)	107	..	..
E. D. Sheeley	101	17	84	K. B. Zint* (G't)	99	..	..
J. E. McFate*	105	26	79	R. J. Roach (G't)	125	..	..
R. K. Milward	101	16	85	H. W. Sherriff (G't)	110	..	..
M. B. Allan	108	23	85	W. J. Hampton (G't)	98	..	..
H. C. Nannen	107	25	82	G. E. Burns (G't)	107	..	..
Wm. Brown	102	18	84	F. D. Cooper	122	24	98
W. T. Arnoldy	95	16	79	M. D. Hayes (G't)	115	..	..
L. E. Slawson	112	28	84	F. A. Grady (G't)	117	..	..
F. X. Marzlof	108	26	82				
Ira R. Kanack	109	25	84				
A. S. Davidson	111	32	79				

* Prize winners.

Scores were high, due to a high wind. After dinner

the prizes were awarded, and meetings for the balance of the year were scheduled as follows:

July 21, Birmingham Golf and Country Club.
August 24, Red Run Golf Club.
September 21, Meadowbrook Golf and Country Club.

Plumbing Plays Important Part in Olympic Games

(Continued from Page 63)

(athletes will arrive in Los Angeles approximately two weeks before the games, which will begin July 30 and last through August 14), those in charge of the construction work were anxious to find the least expensive plumbing installation possible, yet they wished to use some material that would have a high recovery value. The cottages are to be sold after the games, and the whole village dismantled, and it was highly desirable to find some material that could be cleaned up for re-sale.

BUILDINGS TO BE SOLD AFTER GAMES

After investigating and considering the matter, the committee determined to use copper water tubing and compression fittings.

The 60-ft. coils of tubing were cut to the desired lengths, right on the job. Next, it was flanged, and then connected to the fittings. The portable houses, constructed of a light insulating material, were ideal for a speedy plumbing job.

One ¾-in. tube was the take-off for each cottage from the water main, with ½-in. runs to the lavatory and the shower, and ⅜-in. runs to the basins. The kitchens have ¼-in. lines leading to the sinks and the hot and cold water supply. Approximately 40,000 ft. of copper water tubing and 4,720 fittings were used in the whole construction.

The new Los Angeles Olympic swimming stadium, constructed for the international water competitions, was formally dedicated on April 27.

The new pool, a year in the process of building, and costing $200,000, is probably the finest example of a modern plunge, with new, up-to-date appointments.

The total cost of the plumbing and heating of the two plunges was approximately $22,000, installation being made by the Thomas Haverty Company, Earl E. Hockett, estimating foreman, being in charge of the plumbing work, and Lloyd Peticola, in charge of heating.

Approximately 3,300 ft. of piping were used in the construction of the pool for the circulating system and drainage, about 1,000 ft. of 6-, 8- and 10-inch pipes being used for circulation alone. In the building adjoining the plunge, which is equipped with gymnastic facilities, club rooms, dressing rooms and 31 showers, 212 plumbing fixtures were required, with 5,000 ft. of piping.

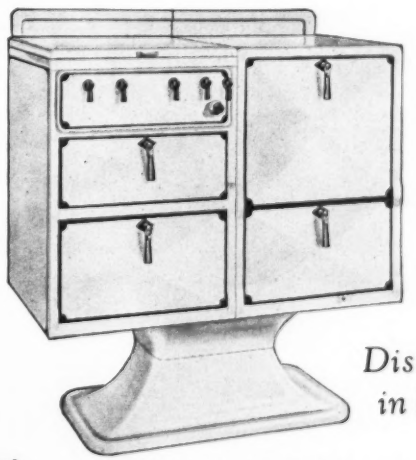
To supply water to the plunge, the take-off from the main is a 4-in. supply line, which feeds the water to two 200 h.p. boilers, gas fired, equipped with a hot water heater. The plunge has a capacity of 840,000 gallons of water, which is circulated through the pool three times daily—an eight hour turnover—by means of two 6-in.

Tempered steel wire brushes . . . . . the quality brushes of the industry. Yet they cost no more.

Every brush made in accordance with tried and true design. Every wire must pass a rigid inspection, and—the wires *cannot* come out.

Complete catalog gladly sent on request

WORCESTER BRUSH and SCRAPER CO.
10 Austin Street :: Worcester, Mass.



Distinctive in Design

The New **OAKLAND**
» *Pedestal* «
GAS RANGE

"FOR HOME FOLKS"

Something more than just another gas range . . . The heavy insulated oven assures a cooler kitchen and a distinct saving in gas consumption . . . Oven controlled by automatic heat regulator.

A new *high* in value . . . A new *low* in cost.

OAKLAND FOUNDRY CO., BELLEVILLE, ILL.

pumps. Two-inch scum gutter drains are spaced about the pool.

Water enters near the top of the plunge at one end, and is drawn off at the bottom of the opposite end. After discharge, it is passed through a battery of 8-ft. by 12-ft. horizontal filtration tanks, down flow system, is reheated and then returned to the plunge by the continuous circulating process. The same filtration system will be used for the second pool when it will be opened to the public. Two chlorinators have been installed, and the pool is supplied with its own system of vacuum cleaning.

Heating Engineers Meet in Milwaukee

The American Society of Heating and Ventilating Engineers held its semi-annual meeting at Milwaukee, Wis., on June 27-29. At these summer gatherings, the visiting members attend technical sessions in the morning with the afternoons and evenings free for social affairs. The character of the engineering papers and the variety of entertainment provided by the Wisconsin chapter united to make the meeting a success.

President F. B. Rowley of Minneapolis, Minn., presided, assisted by Vice Presidents W. T. Jones of Boston and C. V. Haynes of Philadelphia. The other officers are F. D. Mensing of Philadelphia, treasurer, and A. V. Hutchinson of New York, secretary.

Engineering papers presented included "Velocity Characteristics of Hoods Under Suction," by J. M. Dallavalle; "Natural Wind Velocity Gradients Near a Wall," by J. L. Blackshaw and F. C. Houghten; "Carbon Monoxide Distribution in Relation to the Ventilation of a One-Floor and of a Ramp Garage," by F. C. Houghten and Paul McDermott; "Investigation of Air Outlets in Classroom Ventilation," by G. L. Larson, D. W. Nelson and R. W. Kubasta; "Thermal Properties of Building Materials," by F. B. Rowley and A. B. Algren; "Tests of Convector Heaters in a Warm Wall Testing Booth," by A. P. Kratz, M. K. Fahnestock and E. L. Broderick; "Loss of Head in Copper Pipe and Fittings," by F. E. Giesecke and W. H. Badgett, and "Automatic Gas Burners," by C. G. Segeler.

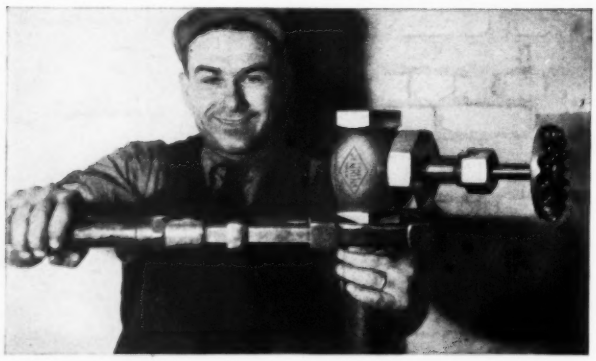
The Wisconsin chapter had made complete preparations for taking care of the visitors. E. A. Jones is president of the chapter with V. A. Berghoefer and John S. Jung serving as vice presidents, H. F. Haupt as secretary, A. F. Bowers as assistant secretary, and Martin Erickson as treasurer. The committee on arrangements was headed by Mr. Jung as general chairman, and H. W. Ellis, advisory; J. G. Shodron, reception; G. L. Larson, registration; A. M. Wagner, transportation; V. A. Berghoefer, finance; H. F. Haupt, entertainment; E. A. Jones, golf; F. G. Weimer, banquet; Ernest Szekely, publicity; C. H. Randolph, ladies' entertainment, and Mrs. E. A. Jones, hostess.

The Master Plumbers' Association of Newton, Mass., and Vicinity, Inc., will hold its annual outing on Wednesday, July 27, at the Mohawk Club, Lincoln, Mass.

Quicker . . . easier to install . . .

this Valve saves time

These clean-cut threads make this job a cinch



Clean-cut, accurate threads make a big difference in valve installation. And this Jenkins Fig. 106-A has them. Then, too, when you put a wrench on those large faces and feel the good grip you get—you know that here is another time and muscle saver.

Other important advantages include: Husky one-piece screw-over bonnet that withstands wrench abuse; a unique slip-on stay-on disc holder that makes disc replacement a simple job; extra-deep stuffing box for leak protection and less repacking; real bronze metal and heavy construction throughout.

Ask your supply house about this superior valve or write for Form 141. Made in globe, angle, cross and check patterns, screwed or flanged.

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

JENKINS BROS.

80 White St., New York, N. Y., 510 Main St., Bridgeport, Conn., 524 Atlantic Avenue, Boston, Mass., 133 No. Seventh St., Philadelphia, Pa., 646 Washington Blvd., Chicago, Ill.

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

Miami Valley Trade Golfers' June Meet

The Miami Valley Trade Golf Association held its regular monthly tournament on June 17 at the Kenwood County Club, Cincinnati, with an attendance of twenty-eight members. The host of the day was George Jones of Crane Co., and he proved an ideal one. Following a fine buffet luncheon, the party teed off at two o'clock.

The scorekeeper's record of the afternoon's events follows:

First Foursome

	G.	H.	N.
K. Fitzpatrick	110	30	80
H. Arnold	101	15	86
F. Hinkson	96	14	82
D. Pickrel	99	14	85

Second Foursome

	G.	H.	N.
A. Sheere	103	24	79
A. Graham	100	21	79
C. Kiefer	104	22	82
C. Tudor	106	25	81

Third Foursome

	G.	H.	N.
W. Hair	89	9	80
R. Peck	95	8	87
B. Houliston	102	19	83
J. Grimm	85	13	72

Seventh Foursome

	G.	H.	N.
H. Bedinghaus	97	20	77
L. Bedinghaus	124	35	89

Fourth Foursome

	G.	H.	N.
E. Richard	105	23	82
H. Hermann	117	28	89
W. H. Spohn	90	20	70
R. W. Mott	104	20	84

Fifth Foursome

	G.	H.	N.
R. Markarius	131	35	96
W. Mayne	125	30	95
H. Morner	97	23	74
H. C. Scott	113	24	89

Sixth Foursome

	G.	H.	N.
W. C. Green	140	35	105
Lewis Lott	126	35	91
P. H. Beam	118	30	88
G. Jones	116	30	86

	G.	H.	N.
Jos. Bedinghaus	100	25	75
O. Allonier	116	30	86

After the golf game an elaborate dinner was served, and this was followed by the awarding of the prizes by Mr. Jones, as follows: Low gross prize, a sweater, went to James Grimm. Low net prize, the president's cup was won by Walter H. Spohn. Low net foursome prize went to Messrs. Tudor, Kiefer, Sheere and Graham, while H. Scott was awarded the prize for the best form.

Secretary Harold Hermann's report, which was rendered at this point, showed that the association is in a good financial condition.

The election of officers for the ensuing year resulted in the choice of Walter Hair of Hamilton, Ohio, as president, and E. J. Richard of Cincinnati as secretary—by acclamation.

The next meeting of the Miami Valley Trade Golf Association will be held at the Scioto Country Club at Columbus, in July, when James Grimm will be host.

C. J. Marsh Delivered Address Before the Hydro-Thermal Club

C. J. Marsh, counsel for the Wisconsin Master Plumbers' Association and for the Milwaukee Master Plumbers' Association, was a guest and speaker at a meeting of the Hydro-Thermal Club on June 2 at the Badger Hotel, Merrill, Wis.

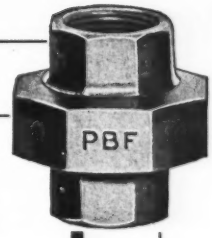
How to Plan a Big Plumbing Job

(Continued from Page 58)

have air chambers but these are approximately 12 in. long and are the full size of the supply. There is a soap storage tank on the fourth floor of the power house from which liquid soap is run by gravity to each washer.

AIR CHAMBERS FOR QUICK ACTING VALVES

For the nurses home building there are two tanks in the sub-sub-basement apparatus room at grade — 9.0.



EVERY Brass Fitting made by PHOENIX is of RED METAL and receives the following tests:

PHOENIX
BRASS FITTINGS

Inspection after Casting.
Inspection prior to Threading.
Inspection of Threading.
Air-Under-Water pressure test.

"If it's a 'P. B. F.' it's a Quality Fitting"

Phoenix Brass Fittings Corp.
Irvington, New Jersey

WOLVERINE BRASS

Dependable

COMPARE! Compare Wolverine Brass Goods of *today* with the same goods of 1929! You'll find them even better. You'll find many improvements. You'll find even greater values. And you'll find, as always, the same high quality of materials—painstaking care and accuracy in machining—fine finish.

As ever, Wolverine Brass Goods remain completely dependable. As ever, Wolverine keeps faith with the plumbing trade.

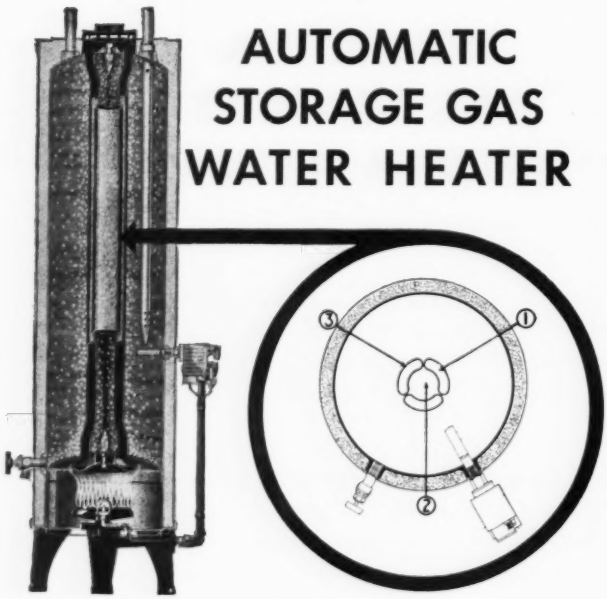
WOLVERINE BRASS WORKS
GRAND RAPIDS, MICHIGAN
We Sell the Retail Plumbing Trade

WOLVERINE

Multi-Kidney Shaped Flues Cause Rapid Water Heating

A. G. P.

AUTOMATIC STORAGE GAS WATER HEATER

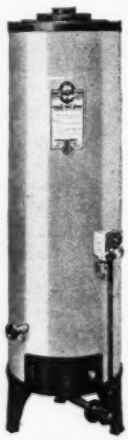


THIS cross-section shows the Multi-Kidney Shaped Flues, designed to give perfect balance between the heating surface and flue area. This arrangement of flue tubes forms a center water column completely surrounded by hot flue gases, thus causing rapid heating and circulation of water. Number of tubes varies from three to seven, according to size of tank. Diagram shows: (1) Interior of kidney shaped flue section through which hot gases rise. (2) Central water column—large heating surface to small volume of water induces rapid circulation. (3) Outside flue area provides additional heating surface.

● Using an entirely new principle of heat transference, A. G. P. Automatic Storage Gas Water Heaters assure efficient and economical hot water service. They are made for manufactured, mixed, natural and other gases.

Complete automatic controls and operating functions are *all* centered in one valve. It is snap-acting, positive and dependable. A special cast-iron baffle distributes the hot gases uniformly into the flue tubes. It also collects and revaporizes any condensation that may occur.

A. G. P. Water Heaters are approved by the American Gas Association. Made in five sizes—20, 25, 30, 40 and 75 gallon capacity. Furnished with either galvanized or Everdur tanks, heavily insulated with rock wool. High lustre, cream colored enamel jacket makes these heaters harmonize with most modern basement or kitchen. Write for catalogue.



AMERICAN GAS PRODUCTS CORPORATION
40 WEST 40th STREET, NEW YORK, N. Y.
Division of AMERICAN RADIATOR COMPANY

Each has a storage capacity of 1,100 gallons and a heating capacity of 3,000 g.p.h. They are supplied by a 5-in. pipe and have a 5-in. hot water main which becomes a header at the 15th floor ceiling for the down feed risers.

The foot of all water risers are connected to a drip system which discharges into the sanitary system through an open fixture.

Fire protection is afforded by means of sprinklers and standpipes. The sprinkler system was not included in the plumbing specifications and will not be discussed in this article. The only connection between the plumbing piping and the sprinklers is the 8-in. connection left at the bottom of the 8-in. riser from power house tank as referred to above.

Sales Helps Developed at Gas Appliance Meeting

The announcement by Secretary Kimmell that an instructive program would feature the June 24th meeting of the East Bay Unit of the Gas Appliance Society of California, met with generous response when master plumbers, dealers and their salesmen gathered at 17th and Clay streets, Oakland, for the monthly meeting.

President T. J. Clark first introduced C. B. Babcock of the C. B. Babcock Company of San Francisco, who sketched out briefly the history of the gas industry, how it has grown and developed a wide variety of appliances. "Business is now in splendid shape to go ahead, considering the excellence of the product and the low range of prices." The speaker also pointed out that the man, who is getting ahead now, is the one who is facing facts and pushing values.

L. F. Galbraith, sales manager of the East Bay Division of the Pacific Gas & Electric Company, emphasized the value of serious optimism.

In view of the changes now being made in the Oakland gas appliance ordinance and its forthcoming reconsideration by the city council, the reading and comments on the proposed changes by R. R. Deener, chairman of the society's ordinance committee, were particularly timely and well received.

Bert Reynolds, member of the society's directing board, rendered a concise report on the activities of the promotional advertising campaign.

Heating in Residences and Small Structures

(Continued from Page 101)

from the radiators as well as the water is discharged into the same line. The steam main must be graded and drained exactly the same as in a vacuum system and an upfeed or downfeed system of feeding may be used.

On these systems the return main is nothing but a waste pipe which must be pitched constantly and continuously from the first radiator trap discharging into it until it reaches the return pump or automatic return trap. No pockets can be permitted and no lifts or rises in level can be negotiated. The size of the return should be the same as the dry return for a vapor system and no valves, checks, or other devices should be used in the return lines until the return pump or automatic return trap is reached.

North Carolina Seeks Co-operation With Wholesalers

Resolution calls for fewer branches and no salesmen in cities having such houses

J. A. Haley, of Charlotte, retiring state president

SEEKING solutions for problems confronting the plumbing and heating industry, members of the North Carolina Association of Plumbing and Heating Contractors gathered in Hendersonville, N. C., at their 22nd annual convention on June 8.

A spirit of earnest desire to find an amicable solution to problems brought on by the depression, and to seek a method of better co-operation with wholesalers was manifested throughout the convention, and these topics early found their way into the convention discussions, were discussed at great length, and resolutions finally passed by the convention to solve, in a measure, some of these problems.

Wilbur R. Dosher, of Wilmington, director of the national association

Officers elected to head the organization for the next twelve months were: A. S. Pettit of Greensboro, president; A. Z. Price of Charlotte, first vice president; L. V. O'Callahan of Southern Pines, second vice president, and E. B. Grady of Concord, who was re-elected secretary-treasurer.

Delegates to the convention of the National Association of Master Plumbers of the United States, in New York City, were named as follows: L. P. Paschal, A. Z. Price and E. B. Grady; alternates: A. S. Pettit, Finley Pace and S. A. Tompkins.

Members of the executive committee will be named at a later date by the newly elected president, and the selection of a meeting place for the next convention was left to the executive committee.

Members of the legislative committee, to be appointed later, were left uninstructed as regards any specific legislation before the next state general assembly, but were urged to work for a continuance of the law requiring registration, passed by the 1931 assembly.

The report of President J. A. Haley, of Charlotte, and of Secretary E. B. Grady, of Concord, reflected the trying times faced by the industry, but disclosed at the same time the fact that officers and members of the association are making great efforts to continue and improve the work of the organization.

President Haley's report showed that he had been constantly confronted with the cry of "hard times" in seeking to increase the membership of the organization, that meetings held over the state had fallen off in attendance, but the report, nevertheless, was optimistic in tone and praised very highly the efforts of faithful members for the association.

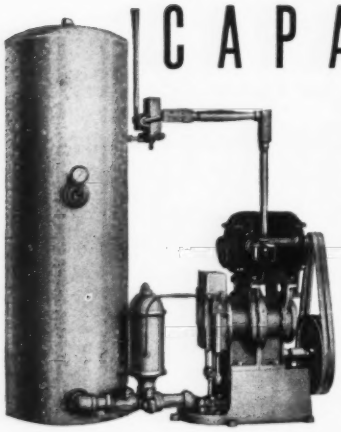
Secretary Grady's report showed among other things that the membership had suffered a decrease from 39 to 29 members during the year. The report also showed a small balance in the treasury.

Members of the association were brought face to face with the problems confronting the industry in the first address of the convention, which was delivered by Wilbur R. Dosher, of Wilmington, a member of the association and a director of the National Association of Master Plumbers. Mr. Dosher launched immediately into the problems of the organization in a forceful address. "We must try to find an amicable solution of our problems" he said. "We have tried individually to cope with our problems and to co-operate with the wholesalers. Now we are down in the mud and we must co-operate to find the solution to the situation and we must co-operate with the wholesalers to find a solution of the difference between us."

"The industry is ours and we must carry it on. Our only solution," he said, "is in the combined thinking of the men of our industry. We as men of our profession have both an inferiority and a supe-

Henry E. Longley, of Wilmington, past president of the national association

GREATER CAPACITY



The new rotary powerhead of Dorward-Red Jacket Water Systems gives greater capacity for the power used. Straight line motion is produced within the head where all parts move in complete cycles, in baths of oil. There are no walking beams, connecting rods or other oscillating parts to create power-consuming friction and to wrack the system to pieces with vibration . . . All parts are extra strong, many of semi-steel construction, and there are fewer moving parts. Service is almost never required. Dorward-Red Jacket Systems are now used for Residences, Farms, Country Homes, Hotels, Tourist Camps, Hospitals, Schools, Apartments — wherever a water system is desirable.

Send for this Catalog No. 11

It contains full descriptions and illustrations of systems with capacities of 200 to 10,700 gals. per hour. Write today.

RED JACKET MANUFACTURING CO.
DAVENPORT, IOWA.

Manufacturers of Pumping Equipment for more than 50 Years

DORWARD-
Red Jacket
WATER SYSTEMS
& DEEP WELL POWER HEADS

riority complex. For example, we are so anxious to impress our customers with our knowledge that we show them how the work should be done, and they then go to mail order houses, buy their own material and do their own work. We need the wholesalers and they need us, and this industry will come back only through the co-operation of members and the wholesalers."

W. F. Morrison, executive secretary of the state board of registration, was a guest at the convention and was heard in a brief address. Mr. Morrison explained the law passed by the last state general assembly requiring plumbers to have a license. The lives of the citizens of this state are due as much consideration as any industry in the state, he said, and this law was passed because it was realized that it added protection to the lives of the citizens of the state. The health of the people of the state depends upon the master plumbers.

"You master plumbers," he said, "have the opportunity to better yourselves in the eyes of the people of the state. You have the opportunity to elevate your trade to a profession. You will get out of the law just what you put into it; the law cannot help you without your co-operation." Mr. Morrison also told the convention of a number of cities in the state that had been "cleaned up in a legal sense" since the act was passed. He stated that city ordinances were being arranged to make the state law applicable.

"MODERN PLUMBING VITAL TO HEALTH"

Two very able papers were presented, the first by W. H. Sullivan, of Greensboro, who spoke on "The Value of Ethics in Business"; and the second by H. S. Ritchie, of Albemarle, who spoke on "Sanitation and Laws." Both men are among the younger members of the association, and their papers indicated the quality of thinking among the association members.

Mr. Sullivan declared that the government, state and national, had been placed in a strong position by asking the various professions to write their own code of ethics, and then being in the position of "condemning them out of their own mouths, if they committed any act contrary to the code."

Mr. Ritchie declared that sanitary standards had been steadily rising for the past 50 years, that due recognition had been given health officers, the medical profession, but that modern methods of plumbing had scarcely been mentioned. "Can we expect the sanitary officers and doctors to file our claim for honors and recognition?" he asked.

"It is our contention," he said, "that health is concerned with other factors than disease germs, which is as far as medical science goes. We contend that health is dependent upon environment, and that the development of sanitary engineering may be traced to man's seeking release from the bondage of drudgery necessary where streams or a shallow well is the source of water supply."

He appealed to the members of the association, described as key men of the profession, to register their opinions with their doctors, lawyers, preachers, school teachers, family, friends and neighbors that modern plumbing is a vital and significant contribution to the health, convenience and morals of the people; that plumb-

ing is not a luxury, but that it is an absolute necessity and is a higher form of health insurance.

"If this is done," he said, "we will never be troubled in getting the necessary legislation and recognition that we should have and to which we are justly entitled."

The resolutions committee, composed of H. E. Longley, of Wilmington; H. S. Beck, of Winston-Salem, and W. H. Sullivan, of Greensboro, brought in a resolution which: "suggested to the wholesalers that they make a survey of territory with the object of decreasing the number of branch houses, and that they consider the discontinuance of city salesmen in cities where branch houses are located." This resolution was passed by the convention with only the minimum of discussion.

The committee also brought in a resolution proposing the alteration of the constitution to provide for dues of $18 per year instead of $36 per year, as formerly paid. This resolution was the basis of an argument of great length on the convention floor. Mr. Longley, Mr. Sullivan, Mr. Dosher and others led the fight for the resolution, declaring that to lower the dues would enable the association to obtain more members, that the increased membership would offset the decreased revenues, and that what the association needed at this time was man power in order to have buying power in its efforts to seek concessions from the wholesalers.

A substitute resolution, calling for the payment of dues at the rate of $12 per year was proposed and was discussed at great length, but the resolution, amended to provide for the payment of dues at $18 per year, payable semi-annually, was finally passed by a vote of 23 to 8, with several members not voting.

Master Plumbers' Outings To Be Held

The North and West Side Master Plumbers' Pleasure Club of Chicago will hold its annual outing on Wednesday, July 20, at Viana's Grove, near Park Ridge, Ill. L. P. Markowski is chairman of the arrangement committee and his assistants are: E. C. Wagner, George Matthews, Fred Grosch, Fred Sorge, H. R. Pillar and A. G. Siewerth.

The annual outing of the Master Plumbers of Baltimore City, Inc., will be held on August 3, 1932, at Dundalk, Md. Max Kloze is chairman of the committee arranging for the outing.

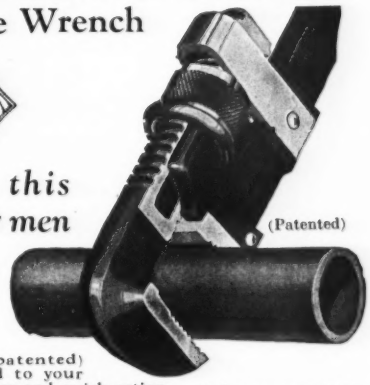
The Association of Master Plumbers of the State of Maryland, Inc., will hold its annual outing on August 11, at Brendel's Manor, Ellicott City, Md. Gus Wirth is chairman of the committee arranging the affair.

The Wyoming Valley Association of Master Plumbers, the Scranton Association of Master Plumbers and the Lackawanna Valley Association of Master Plumbers will hold a joint outing on Saturday, July 23, at Harrison's Place on Bear Mountain Road, near Wilkes-Barre, Pa.

The Master Plumbers Association of Buffalo, N. Y., recently held its 50th anniversary golden jubilee and elected the following officers: W. Frank Clucas, president; William Ludlow, vice president; William G. Maurer, secretary; and William Dechert, treasurer. The new directors are Fred L. Yuhl, Henry J. Ritter and A. G. Kranichfeld.

ARMSTRONG BROS.

Improved Pipe Wrench



Recommend this wrench to your men

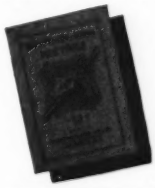
(Patented)

Saves time, prevents accidents, saves replacement costs.

ARMSTRONG BROS. (patented) Pipe Wrenches will add to your profits, for their handiness and quick action speeds up work. They prevent accidents, for their sharply-milled, tool steel jaws take a positive grip that doesn't slip. They are built for lifetime service—will take a heavy side pull without "popping." These are the tools that have forced the general re-designing of pipe wrenches. They are imitated but can't be equalled, for they are patented.

10 Improvements

1. No clumsy "frame."
2. Nut can't fall out.
3. Improved action
4. Improved spring.
5. Replaceable tool steel jaws.
6. Handle strongest at point of strain.
7. Forged lugs to take side strain.
8. No projections below handle.
9. Self-cleaning.
10. Balanced.



Write for Catalog

describing the "Better Pipe Tools" marked with the Arm-and-Hammer—the most complete line made, each an improved tool.

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

323 N. Francisco Ave. CHICAGO, U. S. A.

The above slide can be adjusted to fit tray or sink by loosening bolt shown by arrow.
Thread three inches long so the Leg can be made the height wanted.

REDLON

SINK AND TRAY LEG

Here is a self-contained sink and tray leg that is adjustable all ways. They will cut installation time in half and the amount of trouble they save you in ordering alone, will well repay you for trying them. Simply state whether they are to be used for sink or tray.

Also write us for detailed information regarding the complete Redlon line which consists also of adjustable roof flanges, adjustable boiler stands, adjustable tub traps and closet fittings.

Territories available for Manufacturers Representatives

O. M. REDLON

COR. FRONT & FERRY STS. BATH, ME.

BLAKE CARRIER CHAIRS *for* Wall Hung Closets

K-88 (above). This chair is for blowout bowl. Has adjustable foot for vertical rise. Equipped with adjustable closet collar. Soil pipe connection.

K-90 A (above). For blowout bowl and for iron pipe connection. Complete with all accessories and test cap.

K-89 A (above). Made for syphon jet bowl of any make. Adjustable for height and for closet collar. Furnished complete as illustrated. Soil, Durham or Lead connection.

K-90 AU (above). For blow-out bowl. Companion piece to K-88. Used where a chair is not necessary. Soil pipe connection. Adjustable collar for wall adjustment.

K-88 A (above). For blow-out bowl. Adjustable for height and for closet collar. Comes complete as illustrated. Soil, Durham or Lead Connection.

Blake Universal Carrier Chairs are made for any type of bowl. The carrier plate sets just back of the finished wall. The carrier bolts run from the carrier plate to the fixture only—not back to the fitting. Adjustable closet ring. All bolts of equal length—no specials necessary. Adjustable vertically at the wall. These chairs are exclusive development of Blake engineers and all features are patent applied for. The five types illustrated here are but part of a long line including many designs of wall hung closet fittings made to meet every requirement. We are equipped to design and service any installation, regardless of size. Sold by jobbers everywhere. Send for catalog.

Make no mistake—Use the Tested Blake

BLAKE SPECIALTY COMPANY
ROCK ISLAND « ILLINOIS

NEW TRADE LITERATURE

Catalog of Steam Fittings, Grey Iron, Brass and Aluminum Castings

J. P. Ward Foundry of Blossburg, Pa., has issued its catalog No. 9 of Steam Fittings, Plumbing Supplies, Grey Iron, Brass and Aluminum Castings, including solid plugs, countersunk plugs, radiator plugs, bushings, floor flanges, refrigerator drains, sink couplings for lead pipe, plumbers' pipe hangers, flange unions, range boiler stands, traps, elbows, tees, reducers, brass fittings and cast iron drainage fittings. The catalog consists of 58 pages, 4 ½x6 ¼ in. in size.

"Matched Beauty in Bathrooms"

Kohler Co. of Kohler, Wis., has published a folder, "Matched Beauty in Bathrooms," giving many suggestions by pictures and text showing how fixtures and fittings in the bathroom can be linked together in such a way that they give one the impression that they belong together. The folder stresses the point that it now is possible to combine beauty with style and distinction in bathrooms —at a moderate cost.

Broadside on New Copper Range Boiler

Gerstein & Cooper Co. of Boston, Mass., has just issued a broadside, 17 x 11 in., announcing a new domestic copper range boiler. In introducing this fixture the following points of its construction are stressed: 1. It has heavy beaded brass rings to support it against collapse.— 2. It has solid copper rivets heavily backed with solder.— 3. Drain is placed at low point of bottom for easier removal of sediment, which means rust free pipes and clean and pure water.

New Bar Stock Valve Catalog

The Reading-Pratt & Cady Company, Inc., Bridgeport, Conn., has just issued a new eight-page catalog describing its bar stock valves. This line of valves is precision turned from high grade bar stock metal, and is designed for use wherever a high strength, close control, and low-cost valve is desirable. The valves are made in globe, angle, and cross patterns of bronze, carbon steel, and stainless steel. In addition there are two special valves listed for oil burners.

Leaflet About Built-In Gas and Electric Heaters

Adams Bros. Mfg. Co., Inc., of Pittsburgh, Pa., has issued an attractive ten-page leaflet, 3 ½ x 6 ¼ in. in size, illustrating and describing its large line of built-in gas and electric heaters, including fireplace grate heaters and wall heaters. This leaflet is printed in many colors and it emphasizes the point that these electric and gas wall heaters are triple coat, vitreous porcelain enameled in a choice of eight colors including white, black, canary, orchid, old ivory, horizon blue, autumn brown and gray green, a variety which usually permits an accurate match with walls or furnishings, but any special color can be supplied on order.

Circular About Auxiliary Gas Furnace

The Forest City Foundries Co. of Cleveland, Ohio, has issued a circular, printed in four colors, illustrating and describing its auxiliary and junior gas furnaces. The auxiliary gas furnace is designed to give clean, healthful, perfectly controlled gas heat through the long months of spring, fall and all but the severest days of the winter, when the original heating system is in use. The junior gas furnace is recommended for all winter gas heating in the small, well built home up to six rooms in size and for large homes in the milder climates. It is compact and furnished in four sizes to meet any requirement within its capacity.

WHAT WOMEN ARE DOING

BY DOROTHY EDWARDS

The Fourteenth Annual Convention of the Women's Auxiliary to the N. A. M. P.

Having accomplished a wonderful work in the establishment of its Scholarship Fund for sons of master plumbers, the Women's Auxiliary to the National Association of Master Plumbers has now turned its attention to another great movement, which is planned to be of outstanding benefit to daughters of master plumbers, the establishment of a "Student Loan Fund for Master Plumbers' Daughters." The aim of this proposed fund is to be of assistance to girl students who may otherwise have to give up their studies for lack of funds. In emergencies of this kind such girl students may borrow money from this proposed fund to complete their studies.

Consideration of this plan was one of the outstanding features of the fourteenth annual convention of the Women's Auxiliary to the National Association of Master Plumbers, held in New York City, June 21, 22 and 23, and Mrs. J. Preston Perham of Boston, Mass., was selected to head and appoint a committee to study ways and means for establishing such a fund.

All the officers were re-elected with the exception of Mrs. Herbert L. Rose of Boston, secretary, who is now president of the Massachusetts State Auxiliary and thus unable to carry on the secretarial work for the national organization. She was succeeded by Miss Emily Donoghue of Boston, daughter of Past National President P. W. Donoghue.

When the convention was opened Mrs. J. O. Stapf of Albany, N. Y., president of the Women's Auxiliary of New York State Association, introduced the national officers.

National President Mrs. J. Preston Perham, Boston, Mass., thereupon introduced the board of directors, following which she called the meeting to order.

Mrs. J. Preston Perham, president of the Women's Auxiliary to the N. A. M. P.

WOMEN'S AUXILIARY

To the Members of The Women's Auxiliary:

At the Fourteenth Annual Convention of The Women's Auxiliary to the National Association of Master Plumbers held in New York, I was re-elected to serve as President for another year. I thank the members for their continued confidence in me, and wish to assure them that I will always work for the best interests of the organization.

It has been a pleasure to work with you all in the year that has passed, and I am sure if we all pull together this year we will be able to accomplish much.

We have planned a busy year as several things of importance are to be worked out, one of them being a Student Loan Fund, which will be put into effect next year.

I wish to thank Mr.Kennedy and his committee, also the New York ladies for all their kindness to the National Auxiliary and myself.

The National Office is still doing business at 214 Spring Street, West Roxbury, Massachusetts, and we shall be glad to hear from any member at any time.

Mrs J. Preston Perham
President.

The "Salute to the Flag" was followed by the singing of the national anthem led by Mrs. R. O. Way, Wilmington, N. C., and accompanied by Mrs. C. A. Perham, daughter-in-law of the president. The invocation was pronounced by Mrs. Phillip Brown, Middletown, Conn.

The ladies were heartily welcomed to the city of New York by Mrs. M. J. Kennedy, Brooklyn, N. Y., president of the Women's Auxiliary to the Brooklyn, N. Y., Master Plumbers' Association, and the response on behalf of the visitors was made by Second National Vice President Mrs. Robert Liss of Chicago, Ill.

National Historian Mrs. Rose Friend of Milwaukee, Wis., was not present, having stopped in Albany, N. Y., to celebrate her 84th birthday with her brother, who was celebrating his 90th birthday.

The memorial service for deceased members was led by Mrs. R. O. Way of Wilmington, N. C.

The following committees were then appointed:

Credentials: Mrs. Keiser, Massachusetts; Mrs. Heideweiler, New Jersey; Mrs. Henderson, Missouri, and Mrs. Bryant, Connecticut.

Resolutions: Mrs. C. Zimmerman, New Jersey; Mrs. E. B. Kleine, Ohio; Mrs. H. O. Green, Oklahoma; Mrs. Hughes, Connecticut, and Mrs. Barnett, Delaware.

Memorial: Mrs. Barrett, Washington, D. C.; Mrs. Wm. Kuehne, St. Louis, Mo., and Mrs. A. R. McGonegal, Washington, D. C.

Constant
LOW COST
Operation

Your customers today are buying value that has been proven. They are asking for low-cost service. Probably never before have buyers been more careful. This condition gives a decided advantage to the contractors specifying Leonard Water Mixing Valves.

LEONARD
Water Mixing
VALVES

Witness the fact that in the last several months more than 600 hotels have put on remodeling programs. Those that are remodeling are making careful investigation before they buy. That's the kind of buying that calls for Leonard Water Mixing Valves.

Write for full information today

LEONARD-ROOKE COMPANY
Incorporated 1913
PROVIDENCE RHODE ISLAND

"GENERAL-PENN"
TANK

HEATING UNIT
Bolted in
Storage Tank

HEATING UNIT
Unbolted and
Partially
Withdrawn

HEATING UNIT
Completely
Withdrawn

New and Improved
Submerged Type
Indirect Storage
WATER HEATER

A recent development that meets the increasing demand for a Storage Tank and Indirect Heater combined in *one unit* with the coil *completely removable*. Tanks of EXTRA HEAVY Steel Plate. Hot dip galvanized to U. S. Std. Specifications and Hydrostatically Tested to withstand 250 pounds pressure. All seams riveted and welded.

Sold by Jobbers

PENNSYLVANIA RANGE BOILER CO.
Established 1895
24th & Washington Ave.
Philadelphia, Pa.

Mfrs. of a Complete Line of All Welded and Riveted and Welded Galvanized Range Boilers.

On Thursday, various topics were discussed and among activities proposed for local associations were the giving of wide publicity to defective and inefficient plumbing in comfort stations, and co-operation with parent-teachers' organizations for the teaching of sanitation to children.

Mrs. Fred Kuetemeyer of Milwaukee, Wis., third national vice president, read a paper by Miss Mary T. Stevens entitled "The Auxiliary, Its Onward and Upward Steps." Miss Stevens then presented a survey of specific undertakings for the national auxiliary.

The final session was called to order by Second Vice President Mrs. Robert Liss of Chicago, and the reports of the various officers were presented at this session.

A motion was passed that the national auxiliary purchase 100 bronze markers to place on the graves of deceased members of prominence of both the National Association of Master Plumbers and the Auxiliary.

Past National President Mrs. E. D. Hornbrook of Kansas City told of her efforts to have the permanent injunction against the National Association of Master Plumbers lifted.

Following her talk the auxiliary went on record as being in full accord with her ideas and it will lend its support to her in the work which she is carrying on.

President Mrs. J. Preston Perham presented a check to Mrs. J. O. Stapf, president of the Women's Auxiliary, to New York State Association. This was to be given to the New York State Auxiliary for making the best showing in the membership drive during the past year, having obtained 120 new members.

A motion was made that a fund be established for extension work to take care of traveling expenses incurred by officers in organization work, etc., but not to exceed $100 per annum. Ways and means for raising the money were discussed, and Mrs. E. D. Hornbrook offered to make a quilt to be sold at the next national convention, the proceeds to go to the fund.

Mrs. Charles Zimmerman spoke about the organization known as the Past Presidents' Club and stated that all past and active presidents of auxiliaries are eligible for membership in this club.

President Mrs. J. Preston Perham was the recipient of gifts from the board of directors and from the New York State Auxiliary.

A resolution was adopted to the effect that a local aux-

Mrs. Wm. Kuehne, first vice president of the Women's Auxiliary to the N. A. M. P.

Mrs. Robert Liss, second vice president of the Women's Auxiliary to the N. A. M. P.

iliary can join the National only through the state auxiliary, unless no state auxiliary exists.

A committee to be named later was authorized to go over the by-laws and bring them to a state of perfection.

ELECTION OF OFFICERS

The final business of the convention was the election of officers for the coming year, which resulted as follows:

President, Mrs. J. Preston Perham, West Roxbury, Mass.
First Vice President, Mrs. Wm. Kuehne, St. Louis, Mo.
Second Vice President, Mrs. Robert Liss, Chicago, Ill.
Third Vice President, Mrs. Fred Kuetemeyer, Milwaukee, Wis.
Secretary, Miss Emily Donoghue, Boston, Mass.
Treasurer, Mrs. O. G. Johnson, Minneapolis, Minn.
Historian, Mrs. Rose Friend, Milwaukee, Wis.

Chicago South Side Auxiliary Closes Season

The Women's Auxiliary of the South Side of Chicago held its final meeting of the season at the East End Hotel. Twenty-six members and four guests were present at the luncheon. Mesdames Fyanes, Hager and Jacobs acted as hostesses. Reports were read of the spring luncheon held in May as well as of card parties given by Mesdames Hazard and Ritter at their homes. A delightful afternoon at each home was reported. Aside from the good times of getting together and promoting a happy afternoon, $27.00 was donated to the treasury by those present.

A letter was then read from Mrs. Rosenfield, state president, presenting to the ladies of each auxiliary the advisability of reducing the state dues, and if so, how much?

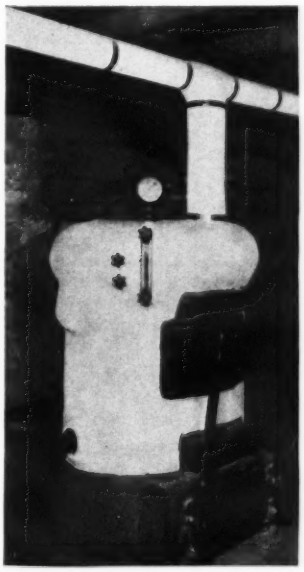
A motion was duly acted upon and the secretary was instructed to write to Mrs. Rosenfield, advising her that their thought was to reduce the dues to one-half of the present dues.

After the business meeting, the ladies adjourned to their much enjoyed games of cards, with honors in bridge going to Mesdames Taffe, Wagner and Larson, and the 500 prize to Mrs. Myers.

A real old-fashioned family picnic was recently held for members and their friends. Swimming, games and all kinds of festivities helped to make the day a memorable one.

Bead Chain brings out the beauty of any fixture to which it is attached, because of its own beauty. It may be ordered in chrome finish or nickel silver to match fixtures. Sell Bead Chain for appearance—its quality is completely established. See that your men suggest it on every job.
THE BEAD CHAIN MFG. CO.
1932 State St. Bridgeport, Conn.
Bead Chain for Beauty

Coverings that Uncover Cash



INSULATE that old boiler; cover the lines, new or old—K & M will help you with material that proves to the home owner that it pays well to insulate. A ten-page booklet "MONEY COMFORT" sent without charge contains simple understandable arguments for you to use in clinching a sale.

Ask your jobber about K & M Aircell in Handy Cartons; K & M 85% Magnesia; Ambler Asbestos Cement, Paper, Millboard, etc.

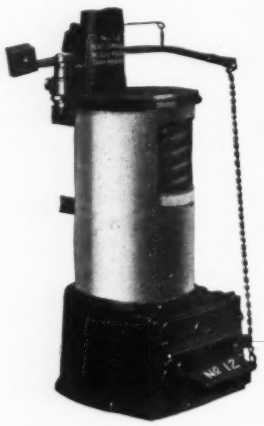
K&M

KEASBEY & MATTISON COMPANY
AMBLER, PENNSYLVANIA

AQUA-MATIC
CONTROL

TENDS FIRE FROM 2 TO 3 DAYS WITH ONE FUELING, IN AVERAGE HOME

The Multi-Flow Copper Coil Tank Heater gives 150° hot water every hour of the day and night. Low cost operation; burns coal. Fire brick combustion chamber holds heat. Copper coil absorbs heat faster, gives rapid circulation. Bronze fittings—clean hot water—ideal heater for use with brass hot water lines. Hooks up in combination with radiator to heat rooms. Made in three sizes. Good margin of profit on heater and installation.



(Cut away view) Aqua-Matic Regulator attached. Red vitreous enamel jacket

150° HOT WATER 24 HRS. PER DAY

Manufactured by

THE NATIONAL PIPE BENDING CO.

Est. 1883

174 River Street
New Haven, Conn.

Storage Heaters, Instantaneous Heaters, Feed Water Heaters Coils, Bends

FREE FLO Heating Element

BOSTON NEW YORK PHILADELPHIA

PERFECTION
FLOOR and CEILING PLATES

The ease with which PERFECTION Floor and Ceiling Plates can be installed will make them favorites with you.

Once you have snapped them on the pipe, they'll hold snug always.

It is best to stock up with them so that you can have them at a moment's notice without delay.

Ask your jobber to supply them to you.

The
BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

Mrs. Joseph Brah Dies on the Way to the National Convention

Mrs. Joseph Brah

Mrs. Joseph Brah, prominent in activities of the Ladies' Auxiliary of the Milwaukee Master Plumbers' Association and president of the state auxiliary, died June 19 in Canandaigua, N. Y., while on her way to New York City with her husband to attend the convention of the National Association of Master Plumbers.

Mrs. Brah will be remembered for her work in helping to prepare for the national convention when it was held in Milwaukee in 1931. She was a tireless worker and much beloved by members of the Ladies' groups with which she came in contact. Funeral services were held Wednesday, June 22, at Milwaukee, at the residence and at the church of St. Thomas Aquinas.

Besides her activity in connection with the plumbing industry, Mrs. Brah was a member of the Women's Relief Corps, the American War Mothers and the altar society of St. Thomas Aquinas, church. Her husband, two sons, a daughter and a sister survive her.

Florida Committee Plans Campaign for Sanitation

To Readers of "Domestic Engineering":

The Florida Sanitation Committee is planning to see that public buildings have adequate sanitary facilities, also any other unsanitary conditions noted, will be reported to the proper authorities.

One thing that will help conditions is to interest more in sanitation by bringing before each city the benefit it is to all in raising health standards and in prolonging life.

Conditions among us would be changed if we could only stir up a different mental attitude. Sanitation is one of the things that will help to do this, and is more important now than it has been in years. We should put forth every effort to let it be known how vital this is to all.

Any suggestions towards furthering the cause of sanitation will be welcomed by

Mrs. F. R. Fanning, Winter Park, Fla.,
Chairman Florida Sanitation Committee.

Rochester Auxiliary Holds Annual Spring Party and Election

On June 8th members of the Ladies' Auxiliary of the Associated Master Plumbers of Rochester, N. Y., held their annual spring party and election of officers at the Old Ridge. The following officers were elected for the coming year: Mrs. Benjamin Kewin, president; Mrs. Charles Gaenzler, vice president; Mrs. John Albert Bliss, secretary, and Mrs. Herbert Heinzle, treasurer. Cards were played following the business meeting.

A card party is planned to be held on August 10 at the Old Ridge. Friends are invited, prizes will be awarded and refreshments served.

Two card parties were held recently, one at the home of Mrs. John Albert Bliss and the other at Lande's Old Spain.

Mrs. J. J. Corcoran, past New Jersey state president, was guest of honor at a bon voyage dinner and theater party given by the Women's Auxiliary of Jersey City at the Hotel Plaza. Mrs. Corcoran sailed for Europe June 13 on the S. S. DeGrasse to attend the Eucharistic Congress in Ireland. Mr. and Mrs. Corcoran plan to tour Europe.

NEW CONTRACTORS & INCORPORATIONS

Monroe, Wis.—The L. Swenson Co. has opened a plumbing and heating business here.

Sheridan, Ore.—Floyd Robertson has opened a plumbing and heating business in the Heider building in this city.

Hampton, Va.—T. Conway Haskins has opened a plumbing and heating business under the name of the Hampton Plumbing and Heating Co. at 133 West Queen street.

Portland, Ore.—The Belmont Sheet Metal and Plumbing Co. has been incorporated with a capital of $1,500. The incorporators are: E. A. Bauder, L. G. Bauder and E. Stoller.

Detroit, Mich.—The plumbing and heating business of Muskovitz & Pershin, Inc., 9840 Twelfth street, has been incorporated with a capital of $25,000, of which $5,000 has been subscribed and paid in.

Lincoln, Neb.—The George H. Wentz, Inc., has been incorporated, with a capital of $25,000, to conduct a plumbing and heating business. The incorporators are: George H. Wentz, Lawrence E. Wentz and Harry M. Wentz.

Hartford, Conn.—James J. Murphy & Son, Inc., has been incorporated to deal in and install plumbing and heating systems, with a capital of $50,000, of which $17,500 is paid in. J. J. Murphy and J. J. Murphy, Jr., are the incorporators.

Plainfield, N. J.—The firm of Tobin and Peterson, Inc., has been organized with a capital of 500 shares of no par common stock, to establish and operate a plumbing engineering and contracting business. Philip H. Moskovitz, local attorney, represents the new firm.

New York, N. Y.—The Nadel Plumbing and Heating Corp. has been chartered, with a capital of $1,000, to establish and operate a plumbing and heating engineering and contracting business. M. Malatsky, 152 West Forty-second street, represents the new company.

Binghamton, N. Y.—Schmidt Brothers Plumbing and Heating Co., Inc., has been organized, with a capital of $25,000, to establish and operate a plumbing and heating engineering and contracting business. The local law firm of Tillapaugh and Relihan represents the new company.

Brooklyn, N. Y.—The Heinz and Guerrier Plumbing and Heating Co. has been organized and incorporated, with a capital of $5,000, to establish and operate a plumbing and heating engineering and contracting business. D. Getzoff, 545 Fifth avenue, New York, represents the new company.

Mount Vernon, N. Y.—C. F. Kappus and associates have organized and incorporated the Kappus Plumbing and Heating Corporation, with a capital of $20,000, to establish and operate a plumbing and heating engineering and contracting business. A. C. Blatz, local attorney, represents the new firm.

Los Angeles, Calif.—The Cox & Marquet Co. has just been organized to conduct a heating, ventilating and air conditioning business. The heads of the new company are William Cox and Clyde M. Marquet, both formerly heating engineers for the Thomas Haverty Company in this city. They will make their headquarters in the Haverty offices until they have completed their work on some of Haverty's contracts. The Haverty company is, as reported some time ago, retiring from business.

The name "ACME" is stamped on every washer

HERE is a different bibb washer in a different container. "ACME" Bibb Washers overcome rapping or chattering and cannot swell or become grooved. "ACME" Bibb washers are made in seven different sizes. The "ACME" Handipak contains 100 assorted washers, a washer for practically every purpose.

LAVELLE RUBBER CO., 320 W. Illinois St., CHICAGO, ILL.

4"x5" Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

5" Round Float

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.

3047 N. Erie St. Toledo, Ohio

Just Look at this Construction

The special construction of the heads plays a big part in the success of "WILHELMI" All-Copper Range Boilers. The heads cannot pull apart making it impossible for the boiler to collapse.

The heads stand up under a hydraulic test before they leave the factory, that is far more severe than the conditions they will meet in every day service.

IMPROVED "WILHELMI" BOILER

HAYES MFG. CO.
Makers
Paterson :: N. J.

The **Price**

is no more than you would pay for ordinary nipples, yet you get more actual value—better pipe, more accurate threading, and

they're rust-proofed

FRICK-REID SUPPLY CORPORATION

117 Sandusky St., N. S. Pittsburgh, Pa.

MARKED "M" INSIDE FOR YOUR PROTECTION

You can have CONFIDENCE *in* THESE *Fittings*

◆

The Best Brass Fittings that experience, modern machinery, rigid inspections and conscientious effort can produce

◆

EVERY time you use Acheson Brass Fittings on your installations, you are using a fitting that is a duplicate of hundreds of thousands of ACHESON BRASS FITTINGS that are serving most satisfactory in installations everywhere.

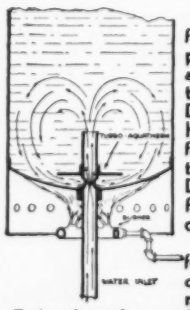
You know what fittings can mean to your profits. For this reason you must be *sure* that your fittings will stand up.

ACHESON BRASS FITTINGS will meet every service requirement. Write your jobber for ACHESONS.

ACHESON MFG. CO.
RANKIN ◆ PENNA.

ACHESON
Brass Fittings

DAHLQUIST
COPPER BOILERS
HIGHEST QUALITY LOWEST PRICES



Turbo-Aquatherm
A new patented device which prevents mud from accumulating in the boiler.

You have three reasons for selecting Dahlquist Copper Boilers: (1) Dahlquist is an acknowledged leader in the Copper Boiler field. (2) Dahlquist Copper Boilers have exclusive patented features that are of revolutionary importance. (3) Dahlquist manufactures the finest product at the lowest current prices.

If you are in the market for a Copper Boiler of any description, Dahlquist will make it and meet your specifications in every respect. On all standard range boilers and hot water storage units, you will make a quicker sale and reap a larger profit when you recommend a Dahlquist. Dahlquist Super-aquatherm and Dahlquist turbo will be demanded by every householder in the near future—write now for latest prices and full information about these new Dahlquist features.

Super-Aquatherm Gas Underfire

Automatic Gas Unit With Side Arm

Architects and heating engineers may rely entirely on Dahlquist workmanship and experience, whether for range boilers, automatic storage boilers or heavy pressure boilers.

DAHLQUIST MFG. COMPANY, 60 WEST 3rd STREET SO. BOSTON, MASS.

New York, N. Y.—The Aschfield Plumbing Corporation has been chartered, with a capital of 200 shares of no par common stock, to establish and operate a plumbing engineering and contracting business. The new concern is represented by M. W. Teichman, 305 Madison avenue.

Nutley, N. J.—The Windheim Plumbing and Heating Company has been organized and incorporated, with a capital of $100,000, to establish and operate a plumbing and heating engineering and contracting business. The new firm is represented by William P. Hurley, local attorney.

North Plainfield, N. J.—With a capital of 1,000 shares of no par common stock, the Ideal Plumbing and Heating Company has been organized and incorporated, to establish and operate a plumbing and heating engineering and contracting business. H. Rothberg, attorney, Plainfield, N. J., represents the new concern.

Darien, Conn.—Albert M. Punzelt Co., Inc., has been chartered under the state laws to engage in the plumbing, heating and sheet metal business with a capital of $10,000. The incorporators are: A. M. Punzelt, Darien; P. W. Gens, Hollis, N. Y. and Frank Cavallo, South Norwalk, Conn.

BUSINESS CHANGES

Amsterdam, N. Y.—Louis Altorio has moved his plumbing business to 56 Bridge street.

Philadelphia, Pa.—The Girard Plumbing Company has changed its name to the Provident Plumbing & Heating Company.

San Francisco, Calif.—The Supreme Heating Co. has moved its heating appliance business from 350 Divisadero to 233 Scott street.

Chicago, Ill.—Jorgenson & Webster have moved their plumbing and heating business from 4203 Fullerton avenue to 5922 Eddy street.

Fargo, N. Dak.—M. M. Sornsin Co. has moved its plumbing and heating business from 626 Second avenue, North, to 116 Roberts street.

Prescott, Ariz.—Smith & Bones have moved their plumbing and heating business from 144 North Montezuma street to 320 East Sheldon street.

Chicago, Ill.—Alfred Jones has moved his plumbing business from 3025 East 91st street to 9001 Commercial avenue, where he has a neat showroom.

Minneapolis, Minn.—The R. E. Arthurs Co. has moved its plumbing and heating business from 4285 Upton avenue, South, to 5005 Thomas avenue, South.

Little Falls, Minn.—F. T. Connolly has succeeded to the plumbing and heating business formerly known as the Fossum Heating and Plumbing Co. at 110 East Broadway.

Greeley, Colo.—E. H. Horton, president of the Colorado Society of Sanitary and Heating Engineers, has moved his plumbing and heating business to 808 Coronado court, where he is installing an up-to-date showroom.

Grand Rapids, Mich.—The plumbing firm of Petersen & Segard, at 1016 Coit street, has been dissolved. John Petersen has purchased his partner's interest and will continue the business under his own name and at the old address.

New Haven, Conn.—Scherman & Greenberg, plumbing and heating contractors of 442 Dixwell avenue, have dissolved partnership and the David Greenberg Company has been incorporated to continue the business.

PIPE LINES CONNECTED BY L·Y·T

PUNISHED

"Daughters need discipline at times," remarked Mrs. Hi-flyer.

"They certainly do," snapped Mrs. Up-All-Night. "My Margery's sixteen, but only last night I had to send her to bed without breakfast." EXCHANGE.

KNEW HIS FAMILY

Manager—No, sir, I would not cash a check for my own brother.

The Thing with the Check—Well, of course you know your own family better than any one else.—Hotel World.

LONG ENOUGH

Waiter—Has your order been taken?

Patron—Yes, and so was my photograph when I was a child.

A convict in Albany was released from the penitentiary and went into a barber shop to get a shave. The barber who shaved the convict was very talkative and inquisitive which irritated the convict exceedingly.

The barber asked him questions and finally asked: "How long were you in the penitentiary?"

The convict answered: "Fourteen years."

The barber said: "What were you put in for?"

The convict replied: "For killing a barber, and it looks as though I am going right back."

RETRACTION

A councilor in a Swedish town lost his temper during a meeting and remarked that half of his colleagues were fools.

An apology was demanded. He promised to make reparation and caused bills with the following correction to be posted on boardings in the town:

"I said that half of the town councilors are fools. I now declare that half of the town councilors are not fools."

JUMP JIM CROW!

It was on a dark night. A trainman on top of a car was giving signals to the engineman, when he dropped and broke his lantern. Another man on the ground tossed his lighted lantern up to the man on top of the car.

In a few minutes the fireman, who was a new employe, came back and called to the man on top: "Let's see you do that again."

"Do what?" asked the brakeman.

"Jump from the ground to the top of a box car," answered the fireman.

LEIGHTON'S GLOOM CHASER.

THE DIFFERENCE

You understand of course, that when a bank hangs on to its money, it's not hoarding, but "a prudent conservation of cash reserve to meet a possible emergency."

—The Insert.

"I once loved a girl who made a fool of me."

"What a lasting impression some girls make."

Minister (calling on inmate of prison)—"Remember, that stone walls do not a prison make, nor iron bars a cage."

"Well, they've got me hypnotized then; that's all."

DALLAS NEWS.

"Just think, Aunt Lil, my husband got Hamburg and Java on the radio last night."

"Now, my dear child, you don't think I'll ever believe they can deliver groceries on that fool contraption."

CROSSED WIRES.

Life is the greatest riddle. We all have to give it up.

L Y T.

Sell Customer Satisfaction ... and profit is assured

You can safely recommend an OHIO... There's a model to fit every job.

Write for dealer proposition.

OHIO

Automatic

WATER HEATER

Manufactured by* THE OHIO HEATER CO., *Columbus, Ohio

The Electric Janitor

FOR THE

LOW PRICED FIELD

$49.00 PLUS INSTALLATION

PRODUCT OF

TIME-O-STAT CONTROLS

DIVISION MINNEAPOLIS-HONEYWELL REGULATOR CO.

Minneapolis, Minnesota ... Elkhart and Wabash, Ind.

Domestic Engineering

OFFERS

A New Poster Service

(See Pages 81 and 82)

Vigorous, Timely Merchandising Copy

✦

See these professional posters in color, striking in design, attractive, with plumbing copy on one side and heating copy on the other.

Follow this poster series—they will be in every issue.

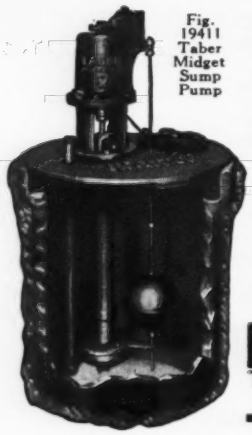


Fig. 19411 Taber Midget Sump Pump

It works . . . . . when needed most

After heavy rain-storms there is an increased demand for Taber automatic Midget Sump Pumps. Frequently they replace "low price" cellar drainers inadequately motored.

Why wait for a peak load to tell whether the pump will work? Avoid troublesome, profitless service calls . . . install Taber first. The owner of any sump pump expects "Dry Cellar Insurance." He gets it with a Taber Midget.

Bulletin and prices on request. Also see Page 923 Domestic Engineering Catalog.

TABER

TABER PUMP CO *Est 1859*
290 Elm Street, Buffalo, New York

SIX POINTS *that help you sell the* DEMING "OIL-RITE" DEEP WELL PUMPS

1 Combined Splash and Pressure Lubrication
2 Helical Cut Gears
3 Sectional Construction
4 Exceptionally Large Bearing Areas
5 Four Sizes, 6", 10", 14" and 18"
6 Automatic Air Release

For complete details on this and other Deming Water Systems, write

THE DEMING COMPANY, Established 1880, SALEM, OHIO

• WARNOCK •

Triple Wear Wrenches

The Warnock wrench is easyto adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickle plated pipe

WARNOCK MFG. CO., Worcester, Mass.

BARRETT

PLUMBER'S *Rough* BRASS *Goods*

The Standard — *Compression Stops* — *Compression Stops and Wastes* — *Ground Key Line* — *Waterworks Brass Goods* — *of Comparison*

THE CLEVELAND BRASS MANUFACTURING COMPANY
4606-4700 HAMILTON AVENUE CLEVELAND, OHIO

SENTENCES THAT SELL

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

A friend's frown is better than a fool's smile.

* * *

Adversity makes a man wise, not rich.

* * *

A lean compromise is better than a fat lawsuit.

* * *

Beware of those who have nothing to lose.

* * *

Great trees give more shade than fruit.

* * *

In prosperity, caution; in adversity, patience.

* * *

Now is the watchword of the wise.

* * *

Ready money is a ready medicine.

* * *

Slander is the homage vice pays to virtue.

* * *

Wise is he who learns from the experience of others.

* * *

It takes two to make a bargain, but only one gets it.

* * *

A fool and his father's money are soon parted.

* * *

Some men go through a forest and see no wood.

* * *

A wise man will make more opportunities than he finds.

* * *

Hope is a good breakfast, but it is a bad supper.

* * *

Every man's own reason is his best guide.

* * *

A man's loose actions often get him into a tight place.

* * *

Many a man is worth less than the insurance he carries.

* * *

A man may be fast asleep, but in spite of that rather slow when awake.

* * *

It's the break of day that prevents night from going too far.

* * *

There is nothing which costs less or comes so cheap as civility.

* * *

If power to do hard work is not talent, it is the best possible substitute for it.

* * *

Doctors seldom disagree, when it comes to bleeding a patient.

* * *

When a man is going downhill, everyone will give him a push.

* * *

The more innings a man has, the better he enjoys his outings.

* * *

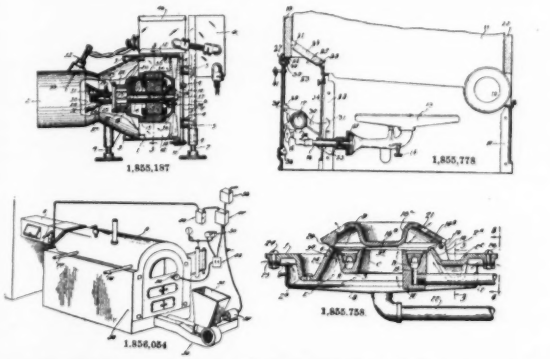
A man should never tell his wife to hurry up, when she is coming down stairs.

NEW IDEAS FROM PATENT OFFICE

Heating Department

1,855,187. Oil Burner. Fredrik W. Hvoslef, Dearborn, Mich., assignor to The Timken Silent Automatic Company, Detroit, Mich., a Corporation of Michigan.

1,855,778. Boiler. Willet E. Stark, East Cleveland, Ohio, assignor to The Bryant Heater & Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio.



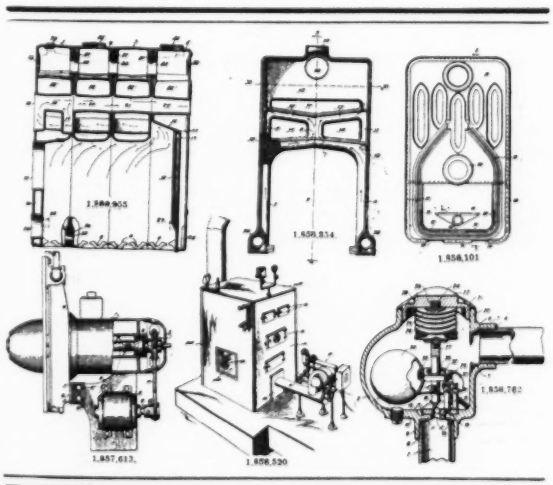
1,856,054. Automatic Draft Conditioner. Herman Goldberg, Chicago, Ill., assignor to Wolff Coal Saver Company, Chicago, Ill., a Corporation of Delaware.

1,855,758. Oil Burner. Dewey H. Hill and Graydon Robinson, Macomb, Ill., assignors, by mesne assignments, to Globe American Corporation, Kokomo, Ind., a Corporation of Indiana.

1,856,354. Sectional Boiler. Charles A. Olson, Geneva, Ill., assignor to Crane Co., Chicago, Ill., a Corporation of Illinois.

1,856,355. Boiler. Charles A. Olson, Geneva, Ill., assignor to Crane Co., Chicago, Ill., a Corporation of Illinois.

1,856,101. Radiator. Ralph W. Kurtz, Coshocton, Ohio, assignor to James B. Clow & Sons, Chicago, Ill., a Corporation of Illinois.



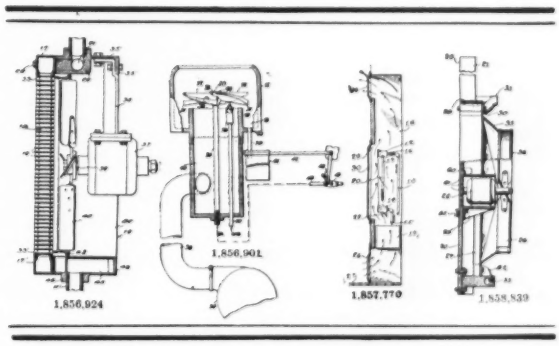
1,857,613. Oil Burner. Ralph S. Whaley, Seattle, Wash., assignor to Petroleum Heat and Power Company, New York, N. Y., a Corporation of Delaware.

1,856,520. Advertising Device Showing Operation of Burner and Boiler. John N. Thomas, Baltimore, Md., assignor to May Oil Burner Corporation, Baltimore, Md., a Corporation of Maryland.

1,856,762. Steam Trap. Martin Hauser, Kansas City, Mo., assignor to General Heating Specialty Company, Kansas City, Mo., a Corporation of Missouri.

1,856,924. Air Heating Unit. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a Corporation of Wisconsin.

1,856,901. Oil Burner. Thomas Anderson, Elmhurst, N. Y., assignor to Combustion Utilities Corporation, New York, N. Y., a Corporation of Maine.

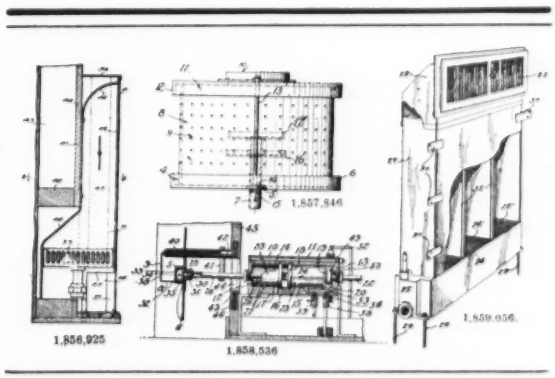


1,857,770. Humidifier. Maurice G. Steele, Rome, N. Y., assignor to The Hart & Hutchinson Company, New Britain, Conn., a Corporation of Connecticut.

1,858,839. Heating Unit. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a Corporation of Wisconsin.

1,856,925. Wall Radiator. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a Corporation of Wisconsin.

1,858,536. Oil Burner. Everett M. Carter, Indianapolis, Ind.



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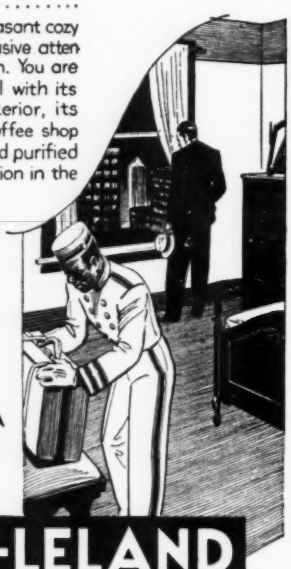

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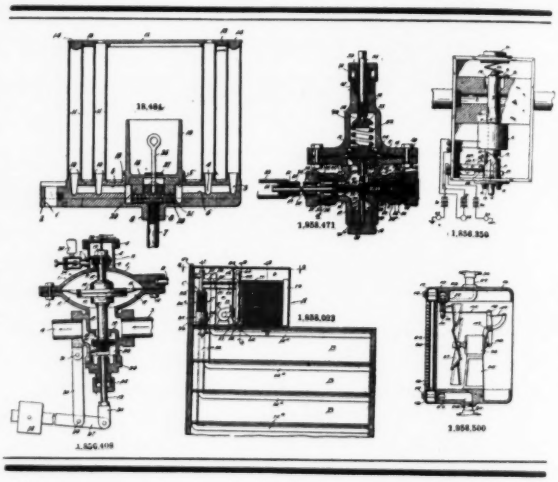
1,857,846. Oil Burner. Sidney J. Heiman, St. Louis, Mo.

1,859,056. Concealed Heat Exchange Unit. Edward H. Seelert, Minneapolis, Minn., assignor to McQuay Radiator Corporation, Minneapolis, Minn., a Corporation of Delaware.

18,464. Fuel Oil Burner. Lawrence E. Johnson, Melrose, and Ernest C. Leach, West Peabody, Mass., assignors to Lynn Products Co., Lynn, Mass., a Corporation of Massachusetts.

1,858,471. Expansion Valve. Romeyn L. Smith, New Brunswick, N. J., assignor to Brunswick-Kroeschell Company, New Brunswick, N. J., a Corporation of New Jersey.

1,856,350. Valve Control. John J. Metcalf, National City, Calif., assignor to Magic Way Gas Heating Appliances, Inc., National City, Calif., a Corporation of Delaware.



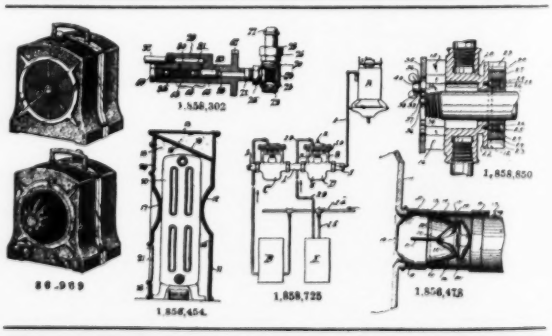
1,856,408. Automatic Stop Valve for Oil Burners. Owen Wesley Brear, East Newark, N. J., assignor to E. S. Hammond, Inc., Newark, N. J., a Corporation of New Jersey.

1,858,023. Air Conditioning Apparatus for Storage Rooms. Charles A. Moore, Edina, Minn.

1,856,500. Air Conditioning Apparatus. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a Corporation of Wisconsin.

86,969. Ornamental Design for an Air Conditioning Device. Fred M. Opitz, Milwaukee, Wis.

1,858,302. Oil Burning Apparatus. Albert E. Marshall, Baltimore, Md., assignor to Fluid Heat, Incorporated, a Corporation of Maryland.



1,856,454. Radiator Cover. William J. Bacon, Memphis, Tenn., assignor to Myrtle M. Bacon, Memphis, Tenn.

1,858,725. Humidifying System. Joseph Armstrong, Conimicut, R. I., assignor to American Moistening Company, Providence, R. I., a Corporation of Maine.

1,858,850. Pipe Guide for Diestocks. Bradford T. Borden, Lakewood, Ohio, assignor of one-half to The Borden Company, Warren, Ohio, a Corporation of Ohio, and one-half to William A. Neracher, Warren, Ohio.

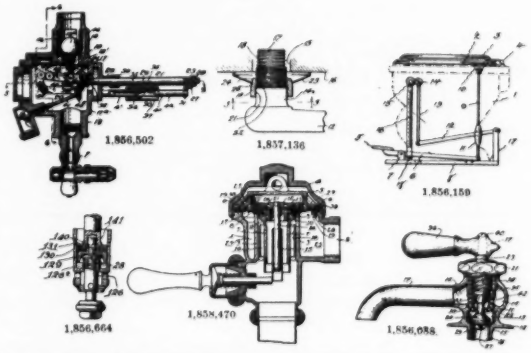
1,856,478. Heat and Draft Regulator for Furnaces, Stoves, Water Heaters, and the Like. Max Greenberg, now by judicial change of name Say M. Green, Cleveland, Ohio, assignor, by direct and mesne assignments, to Heat and Draft Control, Inc., Cleveland, Ohio, a Corporation of Ohio.

Plumbing Department

1,856,502. Control Mechanism. James P. Morley, Michigan City, and Simon J. Lonergan, La Porte, Ind., assignors to Bastian-Morley Co., La Porte, Ind., a Corporation of Indiana.

1,857,136. Sink Fixture. Albert C. Brown, Chicago, Ill.

1,856,159. Water Closet Seat. Thomas Grillo and Peter Mongillo, New Haven, Conn.



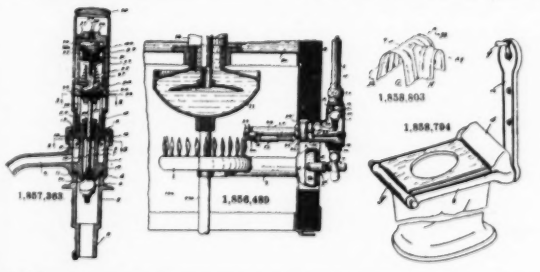
1,856,664. Faucet. Harry S. Steen, Chicago, Ill., assignor to The Chicago Faucet Company, Chicago, Ill., a Corporation of Illinois.

1,858,470. Flush Valve. William E. Sloan, Chicago, Ill.

1,856,088. Valve. Albert C. Brown, Chicago, Ill.

1,857,363. Automatic Faucet. Charles F. Dencklau, Los Angeles, Calif.

1,856,489. Control Mechanism. Simon J. Lonergan and Howard E. Ginther, La Porte, Ind., assignors to



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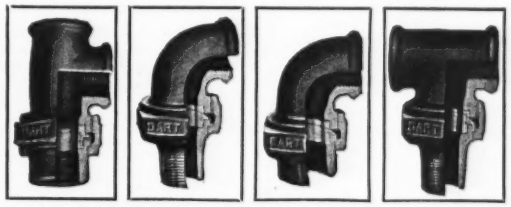

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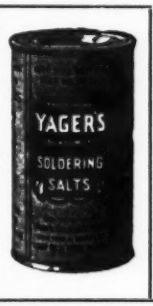

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CANADIAN GENERAL ELECTRIC CO., Toronto and Montreal

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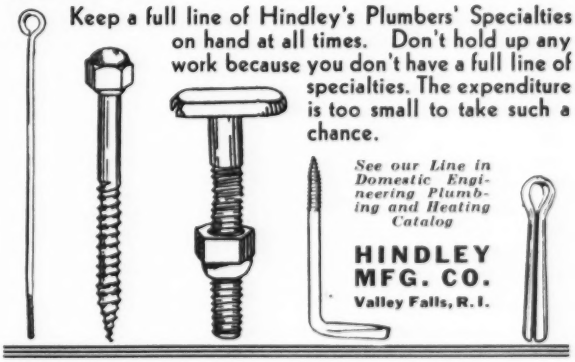
Keep a full line of Hindley's Plumbers' Specialties on hand at all times. Don't hold up any work because you don't have a full line of specialties. The expenditure is too small to take such a chance.



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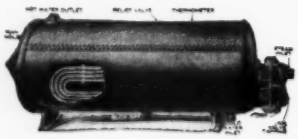


THE PATTERSON-KELLEY CO.
106 East 40th Street New York, N. Y.

Bastian-Morley Co., La Porte, Ind., a Corporation of Indiana.

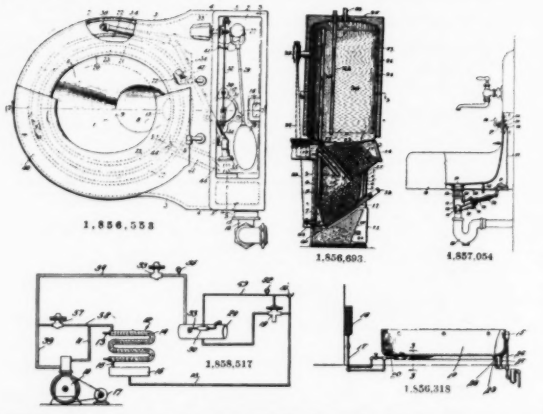
1,858,803. Cover for Under Floor Piping. John E. Burks, Brooklyn, N. Y., a Corporation of New York.

1,858,794. Device for the Mechanical Obtainment of a Changeable Paper or Similar Covering for the Seats of Water-Closet Basins. Enrico Vallecchi, Florence, Italy.

1,856,553. Water Closet. Ulysses G. Haring, Washington, D. C., assignor of one-fourth to Gustav Escher, Washington, D. C., and one-fifth to Herman R. Kuehner, Laurel Springs, N. J.

1,856,693. Hot Water Stove and Storage Tank. Elbert A. Corbin, Jr., Swarthmore, Pa.

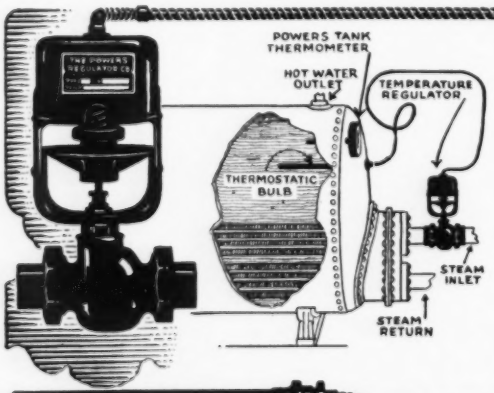
1,857,054. Drain Stop Valve. Peter Luppes, Brooklyn, N. Y.



1,858,517. Refrigerating System. Henry H. Marshall, Highland Park, N. J., assignor to Brunswick-Kroeschell Company, New Brunswick, N. J.

1,856,318. Continuous Flow Tub. Charles R. Clarke, Cranston, R. I., assignor to Leonard-Rooke Company, a Corporation of Rhode Island.

' **Schenectady, N. Y.**—P. J. Watson, 112 McClellan street, has been awarded the contract for the installation of an $8,000 plumbing system in the New York State Hospital at Raybrook, N. Y.



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Besides preventing steam wasted by OVER-heated water, complaints about hot water were practically eliminated.

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One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SALESMAN WANTED, CALLING ON heating and plumbing trade, by a well rated and nationally known manufacturer of a complete line of automatic Heat Control devices. Must have a successful record of producing volume business on an item to retail at $50.00. 97% of the homes are prospects. To real salesman we offer a complete sales merchandising plan, including deferred payments, and an opportunity to make large profits and establish himself permanently in a growing industry with unlimited possibilities. If you can qualify, write full details in first letter. Address Key 759, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

SALESMEN TO SELL RELIABLE LINE of plumbers tools to plumbing and hardware jobbers. Liberal commission basis. Protected territory. No objection to men handling one or two non-competitive lines. Address Key 765, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SALESMEN — LEADING MANUFACturer, with line of cast and steel warm air furnaces, steam and hot water boilers, and other heating supplies, has territory open in Missouri, Iowa, Ohio and Illinois. Address Key 767, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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SALESMEN ACQUAINTED WITH plumbers: We have a proposition that will set you up in a profitable business. Write for details to Sales Manager, 11622 Superior Avenue, Cleveland, Ohio.

Situations Wanted

BOOKKEEPER, STENOGRAPHER, etc. Young man, 27, eight years' experience in combination plumbing, heating and ventilating contractor's office, desires position. Capable of taking full charge of large or small office. Best of references. Will locate anywhere. Address Key 756, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

NATURAL HEATING AND VENtilating engineer, 25 years' experience, can take charge of designing, estimating and installation, familiar with air velocities, fan capacities, anemometer, manometer and psychrometric work. Age 43. Address Key 753, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

PRACTICAL PLUMBER WANTS steady position. First class mechanic. Experience handling work and estimating. Would consider interest in business. Best references; will go anywhere. Address Key 754, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

HEATING ENGINEER — THOROUGH knowledge of plumbing and heating supply business—eighteen years' practical and technical experience—desires connection with jobber or manufacturer calling on the trade in Metropolitan New York. Address Key 761, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

MANAGER, CAPABLE OF TAKING full charge of plumbing and heating supply house, now employed, desires change. Address Key 762, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SITUATION WANTED—YOUNG MAN—Plumbing and heating estimator, engineer, general office routine. Also, outside supervising, 10 years' past experience. Age 33. Married. References. Location no objection. Address Key 763, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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FOR SALE—PLUMBING AND HEATing business in Northeast Michigan; good going business; will sell stock and building at a low price due to other business interests. Address Key 755, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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SALES REPRESENTATIVES BRANCH MANAGERS SALESMEN

who are thoroughly experienced in the sale of steam and hot water heating equipment, who have outstanding sales records and who are interested at this time in a lucrative sales opportunity such as does not usually exist, should write for further information. Give full particulars concerning experience, past connections and sales. Present members of organization are aware of this ad and all inquiries will be treated confidentially. Address P. O. Box 1222, Pittsburgh, Pa.

WANTED — MANUFACTURER'S representatives to work on commission basis representing prominent complete line manufacturer of sanitary pottery. Those with affiliated lines preferred. Kansas City territory, headquarters Kansas City. Michigan and Cleveland territory, headquarters Detroit. Also Pittsburgh and West Virginia territory, headquarters Pittsburgh. Highly regarded, well known line. Unusual opportunity for producers. Replies must contain full details. Address Key 757, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

TO MANUFACTURERS' AGENTS—Manufacturers of plumbing specialties for industrial use, desires representatives particularly those equally well acquainted with the specification writers and plumbing suppliers. Address Key 764, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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LINES WANTED—MANUFACTURERS' agent, covering jobbers in the Philadelphia territory, will take on additional lines. 15 years' experience. Address Key 751, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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This heat control has outstanding merchandising features, sells for less than $50.00, and gives an unusually good profit.

We are particularly interested in distributors who have the capital and sales organization to do a real selling job. Address Key 758, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

EXPERIENCED AGENT WHO KNOWS the jobber in the territory. Old reliable manufacturers' line of tubular brass goods. Exclusive on state. Indiana, Michigan and Wisconsin open. State experience. Address Key 766, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Miscellaneous

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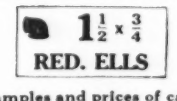

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In The Country

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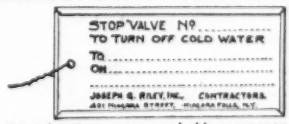

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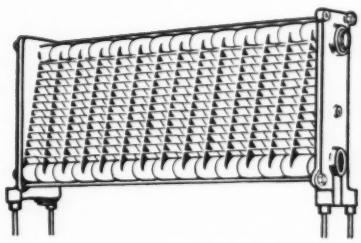

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